

JAPAN'S ECONOMIC CHALLENGE

STUDY PAPERS

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LETTER OF TRANSMITTAL

November 10, 1990.

To the Members of the Joint Economic Committee:

Transmitted herewith for use by the Joint Economic Committee, Congress, and the interested public is a study of the economy of Japan and its challenge to the United States. The study is composed of papers prepared at the Committee's request by government and private sector experts. It is part of the Committee's continuing efforts to monitor the economies in the East Asian region.

The current study examines Japan's emergence as an economic superpower. In order to understand this nation's impressive performance and growing global role, there are assessments of its policies, structure, and domestic and international trends.

Japan's economic challenge is without precedent. In a relatively short time she has become the world's second largest industrial power, a major competitor in many markets, and a model that developing countries in Asia and elsewhere seek to emulate. While one cannot know with certainty the full consequences of her rise or the secrets of her success, it is safe to say that American living standards and life styles have been significantly influenced. The chances are that future developments in Japan will exert even greater sway over our lives.

Many authors contributed papers to this project. We are grateful to all of them. The authors are from the academic community, private research groups, U.S. government agencies, the Library of Congress, and the Joint Economic Committee. We owe special thanks to the Congressional Research Service of the Library of Congress for making available the services of Dick K. Nanto, who heads the Japan Task Force, to edit and help plan the study. Dr. Nanto and Richard F Kaufman of the committee staff, planned, coordinated and directed the project. John Williamson and Meredith Morris from CRS provided production assistance.

It should be understood that the views and conclusions contained in the volume are those of the authors and not necessarily those of their respective institutions, the Joint Economic Committee, or individual members.

Sincerely,

LEE H. HAMILTON,
Chairman, Joint Economic Committee.

CONTENTS

JAPAN'S ECONOMIC CHALLENGE

	Page
Letter of Transmittal	III
Overview, by Dick K. Nanto	VII
I. FRAMEWORK OF ECONOMIC POLICY	
Recent Trends and Outlook for the Japanese Economy, by Craig Elwell	1
Framework of Monetary Policy in Japan, by Shinji Takagi	12
Outline of Public Finance in Japan, by Shinji Takagi	27
II. GOVERNMENT AND BUSINESS	
Japanese Government-Business Relations, by Phyllis A. Genther	47
Business-Business Relations: Auto Parts Sourcing in Japan, by Michael J. Smitka	63
Japan's Industrial Groups, the <i>Keiretsu</i> , by Dick K. Nanto	72
Productivity of Japanese Manufacturing Industries and Their Market Competition, by Tetsuji Yamada, Tadashi Yamada, and Guoen Liu	89
III. FINANCE AND INVESTMENT	
The Cost of Capital in Japan and the United States, by Douglas Ostrom	103
Financial Reform, Inflation, and Monetary Policy in Japan: Lessons for U.S. Policy, by Thomas F. Cargill	116
Foreign Access to Japan's Capital Markets, by James K. Jackson	136
Japan's Foreign Investment Laws and the T. Boone Pickens Case, by Sung Yoon Cho and Constance A. Johnson	154
Foreign Pressure and the Liberalization of Japan's Financial Markets, by Frances McCall Rosenbluth	174
Japan's Financial Stake in the United States: How Stable Is It? by James K. Jackson	188
Japan-U.S. Joint Manufacturing Ventures, by Dorothy B. Christelow	209
IV. HUMAN RESOURCES	
Japan's Changing Population Structure: Projections and Implications, by Wayne M. Morrison	223
Social Security Systems in Japan, by Robert L. Clark	229
The Japanese Labor Market, by Robert Evans, Jr.	240
Women in the Japanese Labor Force, by M. Anne Hill	255
The Recent Decline of Unionization in Postwar Japan: A Comparative Appraisal, by Carl Mosk	267
V. SCIENCE AND TECHNOLOGY	
Asymmetries and Potential Complementarities: Scientific and Technological Relations Between Japan and the United States, by Martha Caldwell Harris	275
Appraising Japanese Science and Technology, by Cecil H. Uyehara	289
Science Policy in Japan and the United States as It Affects Scientific and Economic Development, by David M. Flynn	308
Japan's Basic Research: Evolution From "Manufacturer" to "Laboratory" for the World, by Genevieve J. Knezo	320
Japan and the Global Environment: Problem Solver or Problem Maker? by Alan S. Miller and Curtis Moore	338

VI

Page

VI. NATIONAL SECURITY AND FOREIGN AID

Defense Policy, by Larry Niksch.....	353
The Japanese Defense Sector in Perspective, by Richard F Kaufman.....	371
Japan's Defense Industry, by Steven K. Vogel.....	386
Japan's Foreign Aid Program: Adjusting to the Role of the World's Leading Donor, by Larry Q. Nowels.....	397

VII. INTERNATIONAL ECONOMIC RELATIONS

Market Opening in Japan: Challenges for U.S. Policy, by Raymond J. Ahearn.....	411
U.S.-Japanese Economic Relations in the 1980s and the Challenges That Lie Ahead, by William H. Cooper.....	424
U.S. Trade Friction With Japan, by Alan Wm. Wolff.....	437
An Analysis of Japan's 1990 Import-Expansion Measures, by Stephen V. Marks.....	443
Opening of Japanese Markets to Agricultural Imports, by Donna U. Vogt.....	455
Capital Flows and Trade Imbalances: The U.S.-Japanese Interactions, by Robert Z. Aliber.....	470
A Japan-Dominated Asia-Pacific Region? by Richard P. Cronin.....	484

OVERVIEW

By Dick K. Nanto ¹

Japan's economic challenge to the United States differs from any other challenge that the Nation has faced during the past century. This challenge is not military nor is it territorial, yet it is often described in the rhetoric of "war." The challenge is not of life and death proportions, yet it affects the daily affairs of Americans in ways that are both obvious and insidious. The challenge does not constitute a zero-sum game, neither is there an absolute winner or loser.

The economic challenge comes from a nation that has risen from total devastation following defeat in World War II to an economic superpower. Japan today boasts a gross national product exceeding two trillion dollars—more than half as large as that of the United States—and a level of per capita income that rivals the American. It has become the world's leading capital exporter. Its foreign aid program has surpassed that of the United States, and its industries ranging from computers to automobiles vie for market share world wide.

For the United States, the challenge of Japan is, essentially, how to adjust national policy and perceptions to account for this new power in world economic affairs. What should the United States do about a country that formerly was a niche player and generally deferred to U.S. international interests but now controls a sizable percentage of world wealth, is increasingly pursuing independent economic policies, and whose industrialists seem to know few bounds? How can Americans take advantage of the newly created productive power, the economic dynamism, and innovative technology being created by Japan? Is this challenge a threat or an opportunity?

WORLD CHANGES

The economic challenge of Japan is intensified by four fundamental changes in the world environment. The first is the end of Pax Americana in which the United States dominated the free-world economy. The United States is still preeminent, but it is only first in a troika of Europe, North America, and a Japan-dominated East Asia.

The second is that economic power is rivaling military power as the active determinant of world influence and the ability to create wealth. The Cold War is ending, and among industrialized nations,

¹ The author is editor of this volume and Head of the Japan Task Force, Economics Division, Congressional Research Service.

trading and production are replacing conquest as the preferred route to national influence. Japan is well positioned to take advantage of this change.

Furthermore, the classical trade-off between guns and butter has begun to bind in many nations. The conflicting interest is not just between military and consumer production, per se, but it is between spending on military forces abroad versus spending on social problems at home. While the retreat from empire by the Soviet Union has been noted as the prime example of this trade-off, Japan with no overseas commitments but a surging domestic economy is cited as the opposing case.

Third, international trade performance and the balance of imports and exports has become an important variable in determining the net wealth of a nation. Mercantilism is not dead, because in liberalized world capital markets, export surpluses can generate higher domestic savings which then can be exchanged for foreign assets. Twenty-five years of trade surpluses in Japan (combined with high saving rates) have enabled that nation to go from a debtor nation to the world's largest creditor. The obverse for the United States has changed it into the world's largest "debtor" nation. (Foreigners now own more assets in the United States than Americans own overseas.)

Fourth, the pace of technological change has become so rapid, that no single company or even nation seems to be able to stay on the high-technology frontier by itself. Interdependence has become the watchword. Even premier companies such as IBM, Boeing, General Electric, and General Motors have to form alliances with foreign corporations. Few companies on their own are able to keep their technological edge for long, and fewer still can dominate the many markets in the world alone. Japanese companies and research laboratories have become an important source of technology and innovations.

JAPAN'S ECONOMIC ENVIRONMENT

In the process of becoming a world-class economic power, Japan has racked up massive trade surpluses with other countries of the world. Its trade surplus peaked at \$96.4 billion in 1987 and dropped to \$77 billion in 1989—including a \$49 billion bilateral surplus with the United States. The excess capital in Japan is flowing into world investment markets. As of the end of 1988, Japan had a total of \$285 billion in investments in the United States. This included \$53 billion in direct investments and \$91 billion in U.S. Federal debt securities.

The rise of Japan as an economic superpower has been so dramatic that one well-known observer has characterized the United States and Japan as having "traded places" and that Japan has now taken the lead in world economic affairs.² Whether that nation has really taken the lead is doubtful, but what is certain is that particular Japanese industries are world leaders and that the United States now is usually obliged to share international economic decisionmaking with Japan (and Europe).

² Prestowitz, Clyde V, Jr. *Trading Places*. New York, Basic Books, 1988.

Much of Japan's economic power centers on its corporations. They are huge and strong. In the *Business Week* 1990 ranking (by market value) of the Global 1000 corporations, 333 were Japanese, while 329 were American. Of the top 15 companies in the world, 10 were Japanese while 4 were American, although by sales, 7 were Japanese while 7 were American.³

Japan's businesses operate in certain environments as outlined below. These environments are a major factor in determining their growth and competitiveness. The strategy of this study is to address the question of Japan's economic challenge by examining each of the environments in which Japanese firms operate.

The first environment is macroeconomic in which the government pursues monetary and fiscal policies to influence economic growth, interest rates, and inflation rates. Without a stable macroeconomic environment, firms face debilitating uncertainty in prices and costs as well as in supply and demand. In this study, we examine the framework of Japan's monetary and fiscal policies and the prospects for Japan's future macroeconomic performance.

The second environment is the government-business and intra-business relationships in which government microeconomic policies affect the level and nature of the activities of individual firms. Government industrial policies and antitrust policies are important here. In this study, we ask questions such as how Japan's government interacts with industry to promote industrial development, how buyers and suppliers interact with each other, how the industrial groups in Japan are organized, and the sources of increases in productivity.

The third environment is financial in which Japan is now an integral part of the world financial market. Capital flows, rules for foreign investments, access to capital markets, and fluctuations in exchange rates all operate in these financial markets to affect the performance of firms. In this study we address questions such as how Japan's financial sector works, whether or not Japanese capital markets are open to U.S. investments, what leverage Japanese investors have gained in the U.S. market, and who gains from the interaction, particularly in joint ventures, between the two nations.

The fourth environment is demographic and sociological. Japan's companies derive much of their strength from their employees. Lacking natural resources or a sizable land mass, businesses have combined human resources with capital to build world-class operations. Japan has benefited from a highly skilled labor force and an educational system that has supported business needs. This study looks at such questions as how changes in Japan's labor markets and in population affect the nation and its social security system, how the status of women is changing, and what explains the decline in union activity.

The fifth environment is scientific and technological. This, in turn, depends greatly on the nation's policies toward research and development, education, and technology acquisition. In this study, we address questions such as whether or not the United States is responding sufficiently to advances in Japan's science and technol-

³ The Global 1000. *Business Week*, July 16, 1990. pp. 111-42. In the top 15 companies by profits, however, only 1 is Japanese, while 9 are American.

ogy, what asymmetries exist between U.S. and Japanese science policy, what the level of technology is in Japan, what Japan's policies are toward basic scientific research, and what policies Japan has taken toward environmental issues.

The sixth environment is the military security umbrella under which a corporation operates. Japan apparently has been able to provide for its national defense (with the help of its security treaty with the United States) and has created a small defense industrial base without detracting from the resources needed in its industrial sector. In this study we look at what is happening in Japan's defense policy, the debate over defense technology, and the extent of Japan's defense industrial base.

The seventh environment is in international economic relations. Here again government policies toward market opening, international trade flows, and the interactions between trade and capital flows are important. This study examines the evidence on whether or not Japanese product markets are open to U.S. exports and looks at what is causing the bilateral trade friction, the effects of Japan's import expansion measures, how capital flows have affected trade flows, and the state of Japan's economic relations with the United States.

GENERAL CONCLUSIONS

As each of these environments was examined, a question underlying all others was the basic issue of whether or not Japan's economy and society differs so much from that of other industrialized nations that usual rules-based agreements do not work. In other words, will trade agreements that change tariffs, quotas, procurement regulations, or other rules of trade actually change trade flows into Japan? The revisionist school of thought in the United States asserts that Japan is so unique that changing the rules under which trade is conducted has little effect on actual transactions. They assert that such negotiations have minimal effect on actual trade flows because Japanese society is not ruled by laws but by institutions and people with interests vested in domestic production. The solution, the revisionists assert, is to negotiate directly the level of trade flows or the size of market shares instead of the rules under which these flows are determined. This is the argument for managed trade.

A conclusion that can be inferred from the papers in this study as a group is that Japan indeed is different, but that the difference is more in policies and attitudes toward business than in the structure of society or an inherent anti-foreign attitude among the Japanese people. Certainly, Japan's government supports business activities and fosters technological advance, but that is a policy that can be duplicated by others. Certainly, Japan protects certain of its markets, but that too is a policy driven by domestic politics and industrial strategies. Certainly, many Japanese firms have organized themselves into huge industrial groupings that encourage intra-group buying, but that too stems from business strategies and historical development and is not unknown in other advanced industrial nations. Certainly, government decisionmaking is decentralized and moves slowly, but the policy initiatives in financial de-

regulation, balancing the budget, and in fostering technological advances indicate that Japan does have a center of government decisionmaking that can work quite efficiently.

All these differences in Japan make enforcing rules-based trade agreements difficult, but not impossible or even impractical. Care must be taken, however, to insure that institutional impediments do not move in to replace rules-based impediments that have been officially eliminated. If a specific market is the target of Japan's industrial policy, however, an outcome-based negotiating target may be necessary.

A second general conclusion is that the United States and U.S. businesses can gain much or lose much from their interaction with Japan. Neither, however, can afford to ignore what is happening there. For the Government, Japanese policies offer a fresh approach to similar issues. Examining the policies that Tokyo has taken can be instructive even if the economic environment and constraints are different. For businesses, new technology, product development and manufacturing processes in Japan are progressing so fast that the crucible of competition for many products is shifting from the domestic U.S. marketplace to Japan. A variety of items, particularly consumer goods and business equipment, are appearing in Japanese markets before they are seen in the United States.

SUMMARY AND FINDINGS

FRAMEWORK OF ECONOMIC POLICY

Section I deals with the framework of economic policy in Japan. In terms of the overall record of the economy, during the 1980s, the paper by Craig Elwell concludes that Japan's **macroeconomic performance** was consistently at a high level. Its real GNP expanded rapidly at an average rate of nearly 4.5 percent per year over the decade. Growth at such a pace was well above the 3.0 percent rate turned in by the United States and far above the 2.5 percent rate achieved by the European Community over the same period. The rapid growth had been fueled partly by export booms in the early years of the decade and by investment booms as the decade ended. In 1989, Japan's business investment surged to account for 32 percent of GNP and to a gross amount equal to that of the United States. On a per capita basis, therefore, Japanese were investing twice the amount as were their American counterparts.

Although the absolute level of consumer prices in Japan is high, the rate of inflation has been low. At the beginning of the 1980s, inflation was running at 5 percent (in 1981), but in 1989, prices rose by less than 1 percent. Likewise, Japan's unemployment rate hovered at a low 2 to 3 percent over the 1980s.

The near-term outlook for Japan is for domestic demand to lead the economy and for growth rates to average 3 to 4 percent. Japan's current account surplus could increase slightly, while the growth rate of business investment is expected to decline to more normal levels.

In terms of **monetary policy**, the study by Shinji Takagi notes that the primary objective of Japanese monetary authorities has been price stability. They have accomplished this by maintaining

stable growth in broad monetary aggregates. The Bank of Japan provides a credible indication of its monetary policy by announcing its forecast for monetary growth over the medium-term. In the coming years, it is likely to continue to pursue a prudent monetary policy directed at price stability.

The discretionary actions of the Bank of Japan play a far greater role in the operation of monetary policy than such actions by the Federal Reserve in the United States. The Bank's principal operating tools are direct lending and operations in the interbank market where almost all transactions are made through the mediation of money market brokers. These practices may raise problems with other nations in the future for two reasons: they may give unfair advantage to large Japanese banks, and they may increase the costs of foreign banks which rely on the interbank market for much of their funding.

A second paper by Takagi on the framework of Japan's fiscal policy, concludes that its system of public finance is characterized by a small share for government consumption, a large share for government investment, and extensive intra-governmental transfers. In this system, the central government, particularly the Ministry of Finance, occupies a privileged position. It controls both local finance (through tax transfers and subsidies) and the allocation of private investment funds (through public financial institutions). The lack of fiscal and regulatory independence on the part of local governments has virtually eliminated regional competition and the freedom of local bodies to set their own economic policies.

The budget deficit in Japan peaked in 1978 at 9 percent of GNP for all government and 5 percent of GNP for the central government. By following a contractionary fiscal policy, however, the deficit was turned into a small surplus by 1988. Japan has shown that eliminating a large fiscal deficit is possible.

Japan's extensive system of public depository (postal savings) and lending institutions constitute a potential future friction point in Japan-U.S. relations. Subsidized loans from such government financial institutions can be questioned in terms of equity and efficiency. They also may perpetuate inefficient enterprises and create impediments to the distribution of foreign products and entry of foreign firms.

GOVERNMENT AND BUSINESS

In Section II, the study addresses the topic of government and business relations in Japan. As Japanese industries have begun to excel in technology intensive products, the trade debate has turned to Japan's **government-business relationship** and its role in promoting industrial competitiveness. In the paper by Phyllis Genther, it is noted that in Japan these interactions resemble those in other industrialized nations. They occur formally through official mechanisms and informally through the day-to-day contacts among government bureaucrats, industry executives, and trade association officials. The government exerts leverage over industries through laws dealing with taxes and land use, through administrative regulations, and through various types of administrative guidance. In-

dustry, in turn, attempts to influence government through political contributions, petitions, and industry consensus.

The fundamental difference in Japan's system as compared with that in the United States or Europe is that the acceptance of negotiation, and thus the acceptance of government and business involvement in commercial policy, facilitates the development and implementation of policies of which both industry and government approve. These policies ultimately affect the ability of Japanese businesses to compete globally.

Genther also concludes that the Japanese example shows that ideologically-based explanations of government-business relationships are invalid and culture bound. The trade debate in the United States over industrial policy and the role of government-business relationships many tend to use such explanations to justify policy actions.

Japan's experience also shows that different government-business relationships lead to different policy choices and to different degrees of success for policy implementation. Whether or not the resulting policies will enhance or detract from the nation's industrial competitiveness is highly dependent on the interaction of many factors, including the international environment. It challenges an assumption used by many observers that government-business relationships arise purely out of domestic issues and that these relationships are not pertinent to trade policy formation.

The government facilitated the development of Japan's automobile industry through infant industry protection and incentives for development. These measures provided the minimal security the industry needed to experiment and to grow before it had to test its products against American and European competitors. The current government-business relationship does the same for newly developing industries, but interactions are subject to greater constraints because there is more international scrutiny than existed in the 1950s and 1960s.

The paper by Michael Smitka looks at **business-to-business relationships** in Japan. In terms of buyer-supplier relationships, in the automobile parts sector, many American suppliers are now cost-competitive with those in Japan. Selling to Japanese auto firms would appear to be easy, but such sales have not grown.

Japanese automakers seem interested in buying design and manufacturing services, *not* just parts. In the United States, the Big Three automakers historically purchased simple parts under one-year contracts from the lowest-cost producer. To facilitate this, the auto firms undertook most of the design work in-house, and provided detailed blueprints, and often tooling, to their vendors. In contrast, Japanese auto firms often bought subassemblies rather than simple parts, and, over time, came to expect vendors to develop detailed blueprints on the basis of general specifications. The Japanese auto firms currently maintain small in-house design and engineering staffs and simply cannot turn out a new car without such input from suppliers.

Hence, selling in Japan requires more than being competitive in price. Because of Detroit's purchasing practices, relatively few American auto-parts firms are staffed to provide such design capabilities. In addition, Japanese automakers often require that suppli-

ers enter into a "strategic alliance," establish a physical presence near the factories, and develop a working relationship by undertaking a series of low-risk (but low-profit) orders.

The paper by Dick Nanto focuses on a particular type of **business organization** in Japan. Japan's *keiretsu*, or industrial groups, consist of either conglomerate or vertical groupings of companies that are characterized by long-term association, cross-holdings of stock, extensive business dealings, and, sometimes, sharing of company name.

The conglomerate groups consist of "families" of corporations diversified over numerous industries and usually centered on trading companies and/or banks. They include Mitsubishi, Mitsui, and Sumitomo. The extent of stock crossholdings among the conglomerate *keiretsu* ranges from about 14 to 22 percent of total paid-up capital.

U.S. businesses have charged that the conglomerate *keiretsu* prefer to buy from other member companies rather than from outsiders, particularly foreign companies. On average, intra-group purchases account for 10 to 20 percent of the purchases by *keiretsu* firms.

The vertically integrated groups include 39 blue-chip manufacturers such as Nippon Steel, Toyota, and Matsushita Electric. As with the conglomerate *keiretsu*, vertical *keiretsu* firms hold each other's shares, exchange information, and cooperate in new ventures. Since the relationship is vertical, however, the closest ties are between buyers and suppliers or between maker and distributor in the group.

The Japan Fair Trade Commission enforces the nation's anti-trust laws. It tends, however, to be understaffed and underbudgeted and recently has not been aggressive in prosecuting alleged anti-trust violations. During the late 1980s, it found fewer than 10 violations per year.

American businesses can work around Japan's *keiretsu* system by pursuing several strategies. The system also has been one of the targets of the Structural Impediments Initiative talks between the United States and Japan in 1989-90. Japan has promised to strengthen its antitrust laws and enforcement, but given the support for the *keiretsu* by Japan's business, government, and political elite, the *keiretsu* are not likely to disappear soon.

The study by Tetsuji Yamada, Tadashi Yamada, and Guoen Liu examines various factors that influence the **productivity of manufacturing industries** in Japan. The results of this study indicate that labor productivity in motor vehicles, transportation equipment, shipbuilding, and precision products industries is very high.

In several industries, the *quality* of capital is generally more important to increasing productivity than the *quantity* of capital. This implies that workers in Japan are using capital of high quality, not of high quantity. One could argue that this also indicates the importance of the quality of workers in terms of their education and training. Hence, measures could be taken that would seek not only to save on the use of labor but also to upgrade their quality.

Japanese manufacturing industries generally increase productivity by research and development. The allocation of R&D resources aims at improved product technology in some industries and improved process technology in others.

The stock of technological knowledge depreciates and becomes obsolete quickly in some industries. Spillover effects depend on the characteristics of manufacturing industries. Some industries receive positive spillover effects from R&D embodied in intermediate goods (semifinished products or components), while others enjoy positive external effects from R&D embodied in investment goods.

Given consumer tastes and quality, the most competitive markets in Japan are found in electric machinery and equipment, communication equipment, motor vehicles, shipbuilding, and transportation equipment industries. These industries face a fiercely competitive market. They are relatively aggressive in the world market including in the United States.

The less competitive markets are in chemical products, drugs and medicine, petroleum products and precision products industries. Japanese drug and medicine industries are currently not highly developed. It is known that non-trade barriers exist in Japan for drug and medicine products.

The least competitive markets are in the food, spinning, textile, paper and pulp products, iron and steel, and metal products industries. These industries are not strong in the world market, and especially the food, paper and pulp products sectors, and textile products possess explicit trade barriers in Japan.

All Japanese manufacturing industries are not price competitive in the world market, although the industries face stiff competition in domestic product markets. Trade and non-trade barriers supported by the Japanese government reflect the manufacturing industries' position and their efficiency level in the world market.

FINANCE AND INVESTMENT

Section III turns to issues of finance and investment. Japan's financial power is an aspect of the Japanese economic challenge that has caused considerable consternation among Americans during the 1980s. The steady liberalization of Japan's capital markets along with rising Japanese wealth has created a surge of Japanese investment in the U.S. market along with an increase in U.S. investment in Japan. The financial environment in each country, moreover, has become an important source of industrial competitiveness.

In a study on the **cost of capital**, Douglas Ostrom indicates that many analysts point to the striking difference in what American and Japanese firms have to pay to borrow funds as a primary determinant of the lower investment rates in the United States. The apparent lower cost of capital in Japan could be a key determinant of the success of Japanese firms in international competition. In-depth studies of the cost of capital reveal that indeed the cost of debt and equity financing is lower for Japan's firms than for those in the United States. The difference, however, is far smaller than superficial analysis would suggest. By most measures, capital costs are quite close for American and Japanese firms for relatively riskless projects. In the case of risky investments, however, capital costs tend to be much higher for U.S. firms. This suggests that Japanese firms may have an advantage in risky ventures, such as those in high technology.

In a paper on **access to Japan's capital markets**, James Jackson concludes that despite the nominally lower cost of capital in Japan, most foreign firms seem uninterested in using those sources of capital. This apparently arises from the underdeveloped nature of those markets, which makes operating in Japan's capital markets difficult for foreign, as well as Japanese, firms. As a result, non-Japanese, and often Japanese, firms find that borrowing in the Euroyen market is more attractive than seeking funds from Japanese banks or floating bonds in Japan's capital markets. For foreign firms, the volatility of the currency markets, combined with the limited international role of the yen and expectations that the yen will rise in value against the dollar also have made borrowing in yen unattractive.

Some analysts believe that increased capital flows arising from financial market liberalization should eliminate differences in borrowing costs among countries. Recent studies indicate, however, that interest rates across national borders have not converged.

In a study on **Japan's foreign investment laws and the T. Boone Pickens case**, Sung Y. Cho and Constance Johnson indicate that since 1980, foreign investment in Japan has been subject to relatively few formal constraints. Four industries remain, however, in which the Japanese government requires prior review of investment proposals. These are leather, mining, petroleum, and primary industries (agriculture, forestry, and fisheries). For various reasons, foreign investment also is limited in industries such as banking, insurance, broadcasting, and utilities. In addition, any investment that is considered to be a threat to security, public order, the smooth operation of the economy, or international reciprocity may be subject to longer than usual waiting periods after notification. This provision has been applied to aircraft, space development, atomic energy, and the manufacture of narcotics and vaccines. Government authorities also have wide scope in their use of administrative guidance.

The most celebrated recent investment by an American in a Japanese company is T. Boone Pickens' purchase of a large block of shares in Koito Manufacturing, an auto parts maker with ties to Toyota Motors. Pickens has demanded seats on Koito's board of directors and has accused the company of refusing his request because he is not Japanese and of neglecting shareholders' interests in general. The Koito response has been that although Pickens is now the largest shareholder, he does not control a majority of the voting stock and so can not simply demand representation on the board.

Foreign direct investment in Japan is still at a relatively low level, partly as a result of the informal barriers resulting from business transactions in the *keiretsu* (industrial grouping) system, cross-shareholding among allied companies on a long-term basis, and the small percentage of stocks that are publicly traded. In 1988, U.S. direct investment in all industries, including manufacturing and services, in Japan totaled only \$16.9 billion, or 5 percent of all U.S. investment in other countries.

Frances McCall Rosenbluth, in a paper on **foreign pressure and liberalizing Japan's financial markets**, notes that Japan is in an historic process of deregulating its financial markets. The strong

international pressures to deregulate are evident in that financial institutions and practices in Tokyo have come to resemble those of New York and London. And yet, marked national differences remain. External pressures on Japan may be relentless, but they take on policy significance only when they have affected the costs and benefits of important players within the domestic polity. Japan's domestic structure is key in determining the pattern of policy choices in response to external stimuli. In examining why the Ministry of Finance, yielded to foreign pressure in some instances but not in others, it is apparent that Japan's financial policy making is guided by a domestic calculus based on the political resources of the affected groups. In short, contrary to recent revisionist views,⁵ Japan does have a central policymaking system that responds to political pressures and operates in a manner similar to governments in other democratic nations.

The Japanese financial sector comprises several, well-organized interest groups that have successfully employed their political resources to influence financial policy in Japan. Deregulation is proceeding because: changes in Japan's economic environment have rendered the initial regulatory structure no longer beneficial to these groups, and the Finance Ministry has little choice but to be responsive to the needs of these politically powerful entities.

Several avenues exist through which foreign desires press hard upon Japan. The first is at summit meetings between Japanese and foreign political leaders. Japan's leaders zealously guard against at least the public appearance of botched foreign relations, particularly with the United States. A second is by threatening retaliation. The conspicuous success of Japanese financial institutions abroad makes them especially vulnerable to foreign demands for reciprocal treatment in Japan. A third is the availability of foreign alternatives to domestic services. The relatively lenient regulations in the European financial markets have led to substantial relaxation of Japan's bond market rules and lending practices. Indeed, the Euromarket's competition for wholesale financial services has been far more instrumental in spurring the deregulation of large denomination deposits and loans in Japan than were American demands for change.

The barrage of foreign pressures notwithstanding, some aspects of Japan's financial system remain more or less intact. Even when the Japanese feel some concessions to be unavoidable, precisely what concessions those should be and which groups domestically will bear the costs are often matters of considerable discretion. The surviving configuration of change and continuity is a topological map, as it were, of the ever shifting landscape of power and interests in Japan's financial sector. Much as in domestic legislative change, the forging of new international accords forces the parties involved to match strength with strength, thereby leaving behind a clearer delineation of what each is desirous and capable of preserving.

The study on **financial reform, inflation, and monetary policy** in Japan by Thomas Cargill concludes that when comparing Japan's

⁵ For example see: van Wolferen, Karel. *The Enigma of Japanese Power*. New York, Alfred A. Knopf, 1989. pp. 5-6.

financial changes with those taking place in the United States, two major lessons can be learned. First, U.S. policy should recognize the natural forces changing Japan's financial system and de-emphasize arguments that external imbalances can be corrected by specific financial liberalization efforts in Japan. Second, U.S. policy should recognize the importance of the Bank of Japan's focus on price stability since 1973 in accounting for Japan's less disruptive financial transition and more stable macroeconomic environment. The Bank of Japan in the late 1980s became one of the most credible of central banks. Cargill also concludes that the U.S. Federal Reserve likewise could do well to focus more clearly on long-run price stability, although some have argued the opposite case.

In a paper on **Japanese investment in the United States**, James Jackson notes that such investment has brought with it a fear that a coordinated withdrawal from U.S. financial markets would cause a financial crisis. Japan is now the largest foreign holder of Federal debt securities and the second largest investor in U.S. businesses and real estate.

Under present conditions, however, any major investor who attempted to withdraw large amounts of funds from the U.S. financial markets would probably suffer financial losses on a par with those inflicted on the U.S. markets. Most Japanese financial and political leaders scoff at the suggestion that Japan would attempt to punish the United States through a coordinated financial withdrawal. What is more likely is that economic policies in Japan could inadvertently spark a crisis in the international markets that would quickly embroil the United States.

Japanese and other foreign investors, however, could reduce the amounts of new securities they buy. Under such circumstances, the Nation's credit demand-supply imbalance would force interest rates up in order to attract the necessary amount of foreign capital.

Dorothy Christelow, in a study on **joint ventures** between U.S. and Japanese companies, notes that such ventures account for an estimated 40 percent of Japanese companies' manufacturing affiliate assets in the United States and over 70 percent of U.S. companies' manufacturing affiliate assets in Japan. Both U.S. and Japanese firms have used joint ventures to acquire technology and manufacturing skills and, thus, to improve or defend their competitive position in world markets. In many cases, both partners have been so motivated, matching complementary strengths and weaknesses. But in other cases, strong foreign investors with little to gain from joint ventures have nevertheless chosen this route when confronted with host-country barriers to wholly owned investment. Current barriers are the market practices of business organizations in Japan and a perceived threat of government action in the United States.

One way of judging which country and its multinationals stand to gain more intangible assets from current U.S.-Japan manufacturing joint ventures is to look at the performance of both countries in world trade in the industries where joint ventures are found. The presumption is that a country's stronger export performance in any given industry is based on superior technology, manufacturing or other managerial skills or all of these things. The balance has shifted over time. But in most years, the potential

gains appear to have been greater for the United States than for Japan, and most U.S. partners have learned how to exploit their opportunities. The current imbalance is at least partly due to the reluctance of major firms in strong U.S. industries, most notably aircraft production, to enter into full-fledged manufacturing joint ventures with Japanese companies. Any change in policy could sharply reduce the current U.S. advantage.

HUMAN RESOURCES

In Section IV, the analysis turns to issues dealing with human resources in Japan. If Japan's strength lies in its people, then that strength could be threatened by projected changes in Japan's population resources.

Over the next few decades, Japan is expected to experience major changes in the growth and composition of its **population**. Wayne Morrison notes in his paper that Japan's population growth rate, which began to slow during the 1970s, is expected to decelerate rapidly and to result in a negative growth rate after the year 2005. By this time, the nation's population is projected to peak at 128.5 million and to decrease after that. By the year 2050, the population is projected to drop to 103.7 million—roughly the 1969 population level.

While the overall population in Japan is projected to decrease over the coming decades, Japan will experience a rapid aging of its population (a dramatic rise in the ratio of the elderly to the general population). This is predicted because the average life expectancy in Japan has become the highest in the world—76.5 years for males and 82.2 for females in 1987, and the birth rate, which grew sharply following the end of World War II, slowed significantly by the mid-1950s, creating a "bulge" in the Japanese age structure. The aging process is expected to occur more rapidly and be more pronounced in Japan than most other industrialized countries.

Given the aging of Japan's population, the study by Robert Clark turns to the **Social Security** system provided for them by the nation. Most workers in Japan are covered by one of six different Social Security systems.

The aging of the Japanese population has increased the cost of providing retirement benefits. As a result, in 1985, Japan initiated substantial changes in the Social Security programs. The reforms revamped the National Pension Plan to extend coverage from self-employed workers only to all workers and their spouses. The retirement benefit from this Social Security program is a flat yen amount per year of covered employment. Employees, both public and private, continue to be covered by an additional Social Security plan. Most private employees participate in the Employees' Pension Insurance program which provides an earnings-related retirement benefit. There are four other Social Security programs referred to as Mutual Aid Associations that cover public workers and private workers in some occupations.

In addition to restructuring the Social Security programs, the 1985 reforms modified the benefit formulas to reduce future benefits substantially and thus lowered projected tax increases necessary to finance retirement benefits. An actuarial review of the

Social Security programs in 1989 indicated that earlier projections had underestimated future costs. As a result, Social Security tax rates were sharply increased in 1990.

Population aging has required Japan to confront the same problems of financing Social Security that the United States has faced. Both countries have responded by raising taxes, lowering benefits, and encouraging delayed retirement. While the United States program is currently building up large Social Security trust funds, the Social Security trust funds in Japan are steadily being drawn down. The projected payroll tax increases are a major concern of the Japanese government.

In a study of the Japanese labor market, Robert Evans notes that the market exhibits some signs of change. Most indicators, however, suggest that the basic patterns of the postwar years continue. Those changes which are observed largely involve non-regular and part-time employment.

Between the oil crisis of 1974 and 1988, there has been great continuity in some areas of Japan's labor market, such as annual hours of work. Likewise, certain institutions of the labor market that played fundamentally important roles in the success of Japan's postwar economy have continued. These include the *shunto* process (spring wage offensive), lifetime commitment both as a concept and as a characterization of life for core workers in large enterprises, an age and seniority based wage system, and enterprise unions. In other areas, changes are more apparent, especially in Tokyo and among foreign firms. There is an increased use of specialized labor groups, and the proportion of women who work as regular employees continues to grow.

Recently, Japan's labor market appears to have grown tighter. Firms and government officials talk openly of labor shortages. Yet the evidence for a shortage remains mixed. In Tokyo, while many more jobs than applicants exist, such is not the case in the regions to the north and to the south. More part-timers, especially females, are sought, but their average wages do not rise.

Continued labor market pressure, associated with brisk demand for workers and rising wages, will tend to increase pressure upon the government to allow "guest workers" into the country. If Japan resists this pressure, it will, in time, lead to greater imports of partially manufactured goods.

Many observers believe Japan's labor patterns will undergo enormous change and increasingly will come to mirror those found in other advanced economies. The conclusion of this study, however, is that strong continuity exists in Japan's basic postwar patterns. What changes have occurred have been relatively modest and tended to reinforce basic patterns.

Japan's labor markets are of interest to American policy makers for two reasons. First, the labor market institutions which govern the complex interplay between firm and worker behavior may offer insights which could guide American labor policy. This does not mean trying to graft onto American practice certain attributes of Japanese behavior (quality circles, for example). Rather it means understanding the functional role of Japanese institutions and using that knowledge to improve the functioning of American labor market institutions in ways that are consistent with American

ideals and values. Second, changes in Japanese labor markets may have implications for a variety of other aspects of Japan's economy and thus may be seen as a harbinger of changes which will complement or challenge America's economic situation.

The paper by Anne Hill examines **women in Japan's labor force** and in society. She concludes that they have represented a large reserve of workers who have contributed flexibility to overall employment. Japan's low measured unemployment rate has been due, at least in part, to the large number of women employed in "temporary" positions who appear to leave the labor force altogether during business downturns. The majority of working men have retained "lifetime employment" with little inter-firm mobility. With rapid declines in fertility, rising levels of female education, and changing attitudes, women have entered the formal labor sector in increasing numbers. A greater proportion of them are working as "regular employees." These trends, especially among married women, have been dramatic.

As the female share of the labor force rises, the labor force overall may appear to respond less flexibly to changes in aggregate demand, and Japan may witness an initial slowing of productivity growth, since many of the women who enter the labor force will have less experience and training than their male counterparts. In Japan, the male-female wage gap has recently begun to widen, partly as a result of the changing composition of the female labor force. However, as more and more women become permanently attached to the workforce, increases will probably occur both in their productivity and in their relative wages.

If the proportion of women working in the formal sector of the Japanese labor force maintains its upward trend, Japan can anticipate some of the concomitant social changes experienced by other industrialized nations: further reductions in fertility, higher measured family income with more two-earner families, rising demand for time-saving consumer goods and services (among them, child care), and perhaps movements to change the nature of "work" in Japan, especially calls for reducing the length of work days, work weeks, and the number of geographic moves.

The study by Carl Mosk looks at the question of the recent **decline of unionization in postwar Japan**. He notes that in contrast to the situation in Canada and in a number of European countries, levels of unionization have been steadily declining in both Japan and the United States over the last two decades. For the United States, Mosk concludes that there is considerable evidence that this decline stems from growing employer dissatisfaction with the implications of unionism and hence with heightened employer resistance to new union formation.

Deunionization in Japan seems to arise from structural change, a different source than in the United States. Unions in Japan are typically organized along closed-shop, enterprise lines. Hence they have a vested interest in promoting firm output and market share growth because this encourages firm employment growth and hence growth in union size. As a result Japanese unions tend to accept collective bargaining principles which ties wage growth to achieved and anticipated productivity growth and to take a long-term view which encourages worker investment in skill formation

which in turn raises worker productivity over the long run. While this makes them less threatening to management than industrial unions organized along Western collective bargaining lines, it means that they have a difficult time organizing the small business sector and the rapidly growing service sector where labor turnover is high. Thus enterprise unionism appears to have reached its organizational limits in Japan, and structural change is diminishing its overall impact.

SCIENCE, TECHNOLOGY, AND THE ENVIRONMENT

Section V of this study addresses the issue of science and technology (S&T) with a further paper on the environment. In a paper on the **asymmetries and potential complementarities in S&T relations** between Japan and the United States, Martha Harris concludes that the nations are the two leaders in S&T, but they also present striking contrasts—differences in strengths and weaknesses, in the organizations that generate new knowledge, and in the effects of that knowledge on global market successes. These differences can be seen as asymmetries in S&T that reflect structural differences in the research and development (R&D) systems of the two countries. These asymmetries may be the source of growing disparities in economic well-being or a stimulus for new types of mutually beneficial sharing. A careful look at the asymmetries leads to the conclusion, however, that growing disparities may be the likely outcome unless new policy approaches are developed by private sector as well as government leadership in both countries.

Understanding the nature of the asymmetries is a prerequisite for developing possible solutions. The complexity and the dynamic nature of scientific relations between the United States and Japan make this a difficult and urgent task. The organizations (the corporations, universities, government laboratories, policymakers) that plan for and carry out scientific and technological development are adjusting in response to new challenges, but institutional change often lags behind the pace of economic and technological change.

In order to overcome the asymmetries, this study concludes that (1) a number of global problems and scientific challenges can be effectively addressed only through cooperative efforts; (2) efforts can be made to ensure that U.S. organizations can and do participate in Japanese government-sponsored R&D projects; (3) the United States needs to reexamine joint ventures and other linkages between U.S. and Japanese private sector organizations to ensure that there is a clear benefit to the U.S. side; and (4) efforts should be made to expand participation by U.S. companies and organizations in Japanese-funded aid projects in developing countries.

In terms of **appraising Japan's S&T**, Cecil Uyehara explains that more than forty studies have been completed which examine selected technologies in Japan. This is, perhaps, the first time that the United States has studied the technologies of one of its principal allies so extensively.

A series of comparative studies under the direction of the Japan Technology Evaluation Center (JTECH) indicates that the United States does most of the basic research, but that Japanese basic research is now beginning to receive support and is becoming com-

petitive in targeted areas. The studies also conclude that U.S. and Japanese applied research are competitive and that Japanese product engineering is superior.

JTECH also notes that in mechatronics, Japan has three times the number of robots as the United States and is beginning to lead in research. In micro-electronics, Japan is starting to lead in gallium arsenide R&D. In telecommunications, Japanese components are now the world's best. In advanced computing, Japan has picked a particular approach to parallel computing and has made impressive progress. In computer integrated manufacturing, Japan is far ahead of the United States, although in computer assisted design the two are about equal. In high-definition television, Japan's national strategy is to use it as a vehicle for the next generation of consumer and commercial electronics. In superconductivity, U.S. firms already seem to be falling behind in commercial applications.

Since Japan is now a technological superpower, it would seem useful for the United States to create a dialogue involving the government, industry, and academia to formulate an S&T policy vis-a-vis that nation. Most of the studies comparing S&T in Japan and the United States make no recommendations for U.S. actions and policies.

In a paper on science policy in Japan and the United States and how it affects scientific and economic development process in each country, David Flynn concludes that it has both direct and indirect effects. This deliberate involvement of government organizations as part of a broader process of sponsorship, can create a climate conducive to continuous innovation in the society. Since the early 1980s, many changes in science policy have occurred in Japan and in the United States. Although both countries have undertaken the challenge of improving the climate for technological development, the evidence does not suggest that either country has significantly altered its scientific infrastructure.

Japanese scientists may increase their role in the emerging scientific frontier, especially through collaboration between industry and academia. In the United States, the coordination among the various agencies in the Human Genome Project, because of its large size, may improve the American scientific climate. However, the fundamental erosion of the demographic pool of science and technology personnel in both countries is problematic. Direct intervention by governmental agencies through funding opportunities and other forms of sponsorship may be necessary to stop this erosion.

Critical to effective science policy is the understanding that the infrastructure for S&T is developed at many levels, beginning with early childhood education. Then, secondary schools and universities need sponsorship through retention programs, fellowships, and other educational programs. Furthermore, the institutions of each society need to collaborate in the scientific frontier. The dynamic process of building the scientific infrastructure through sponsorship is a complex but manageable process.

In a study on Japan's basic research, Genevieve Knezo explains that Japan has adopted certain policies recently to enhance its basic scientific research capabilities. Historically, Japanese researchers developed innovations and products whose basic techno-

logical information was discovered in other countries. Japan's successful technology policy is attributed, in part, to high-level, consensus-based priority-setting and decision-making about resource allocation and industry protection. It is using similar government-industry-university priority-setting methods to identify basic research targets. Japan's technological prowess probably will be significantly enhanced if it can develop an ability to generate technology-relevant basic research knowledge and couple it to its already renowned capabilities in product innovation and marketing.

Japan now seeks to increase Government and industry funding for basic research; to modify the hierarchical reward structure of university research; to increase university research funding, especially for younger researchers; to create more "centers" for targeted disciplinary or interdisciplinary research; to train more researchers at the graduate degree level; to open up Japanese research to foreigners; and to tap the research capabilities of foreigners. While there are obstacles to overcome, many believe that Japan will succeed in developing cutting-edge scientific capability in priority targeted areas. As a result, it may be prudent to anticipate how Japanese research policies might affect U.S. decision-making about research priorities.

Is the U.S.-Japan Agreement on Cooperation in Research and Development in Science and Technology (signed in 1988) adequate to enable the United States to identify Japanese research which it should monitor or collaborate in, or for which it should develop complementary or equivalent research capability? Is another mechanism necessary? In order to remain competitive with the Japanese, should the United States improve research cooperation between and among industries, universities and laboratories? Does the Japanese consensual priority-setting process have any applicability to U.S. R&D policymaking?

Alan Miller and Curtis Moore examine the issue of **Japan and the Global Environment**. Is Japan a problem solver or problem maker? They note that environmental policies in Japan have been slow to develop partly because the people consider nature a resource for them to enjoy. Indeed, destruction of the environment became an issue in Japan only when industrial pollution began affecting people's health. The Japanese tend to see themselves, rather than the environment, as the victims of pollution.

Japan's initial environmental activists were victims of pollution. They organized in response to local problems, often health or nuisance related (e.g., noise levels). However, there are some signs of rising interest in both domestic and international environmental issues.

The Japanese Environmental Agency was formed in 1971 largely in response to demands of pollution victims that the government take a more active approach toward the environment. Although the Agency provides an important focal point for environmental advocates and analysis, it has much less power than the Trade Ministry and the other established agencies with economic growth-oriented missions.

Women provide much of the force behind Japan's anti-pollution movement, primarily because they have been viewed as caretakers of the family and of the community.

Japan has made remarkable progress toward improving its overall energy efficiency, but it has been slow to respond to international environmental problems. Traditionally it has been a follower in international policy, has lacked a strong environmental lobby, and has had a strong national consensus supporting economic growth. Recently, however, international pressure has forced Japan to reconsider its position on many environmental issues, including the use of driftnets, importation of ivory and endangered species, the production of chlorofluorocarbons, and global warming. It also is using its financial resources more for projects related to the environment.

NATIONAL SECURITY AND FOREIGN AID

Section VI of this volume turns to the issues of national security and foreign aid. Since World War II, both the United States and Japan have benefitted from their security treaty. Larry Niksch concludes in his paper that U.S.-Japan defense relations are a complex and increasingly difficult issue between the two countries as they prepare to enter the 1990s. During the previous decade, the U.S.-Japan defense relationship was governed by a set of American proposals which the Reagan Administration made to Japan in 1981 and which were based primarily on U.S. Government perceptions of the military situation in the Western Pacific. Japanese defense policy in the 1980s was aimed primarily at attaining some of the broad goals of the U.S. proposals. However, as the 1990s begin, the relationship has acquired a number of aspects that are only indirectly, or not at all, related to the military-strategic situation in the Western Pacific.

Much of today's public pronouncements, parliamentary debates, media coverage, and even government-to-government negotiations emphasize financial (burden sharing), economic, and competitive technological factors. These other factors are assuming an equally important place in the defense relationship. In the future they may affect the priority given to military-strategic cooperation and objectives. Moreover, the Soviet Union, the primary target of U.S.-Japan defense cooperation, shows signs of modifying (though not abandoning) its highly military-oriented policy toward the Western Pacific. If this continues and if East-West relations improve on a substantial basis, the anti-Soviet rationale of the U.S.-Japan defense relationship will likely erode.

Niksch concludes that if Japan and the United States can maintain a base level of defense cooperation (and avoid allowing economic disputes to evolve into a debilitating trade war), Japan probably will not exercise unilateral defense options in the late 1990s. This prospect would be strengthened further if Japan and the Soviet Union can settle their differences and if Moscow reduces its military profile in the Northwest Pacific.

If circumstances turned more unfavorably and Japan exercised one or more of the conventional defense options, it still would not be a military threat to most of its neighbors (many of which have impressive military capabilities) or to U.S. territorial possessions in the Western Pacific (Guam, the Northern Marianas, Palau, the Federated States of Micronesia). A conventional buildup would

have to be much more comprehensive and massive in scope, and Japan would have to go nuclear, before the United States would be threatened.

Prospects for the formation of a Japan-led East Asian trading bloc would increase in reaction to a severe deterioration in Japan-U.S. trade relations and if some East Asian states modified their opposition to a regional Japanese defense role in the wake of a U.S. military withdrawal. Consequently, the Japanese unilateral defense options discussed above could contribute to Tokyo's leadership potential in the region and reinforce its economic influence rather than detract from it.

In the paper on the **Japanese Defense Sector in Perspective**, Richard Kaufman points out that some Americans view Japan's defense activities as too small, while others fear that the rapid growth in funding for such activities in recent years will make Japan a military power and upset the balance in the Pacific and threaten U.S. security interests.

Problems exist in attempting to measure precisely either the rate of growth or the size of Japan's defense program, but it has been ranked anywhere from the third to the sixth largest in the world. Essentially it is about as large as those of the major European NATO countries. Japan does not have aircraft carriers or nuclear weapons, although it has substantial numbers of surface naval vessels and large numbers of fighter aircraft and missiles.

Japan's leadership has been well aware of the role of the defense sector in the economy, the contributions that each makes to each other, and the danger that high defense spending might impede economic growth. The Self Defense Forces have generally failed to achieve authorized manpower levels, even though at 247,000 in 1989 those authorized levels are relatively low. Military pay, benefits, and living conditions have obviously not attracted the required number of qualified recruits.

The defense industry in Japan is relatively small. This is not surprising in a country where total defense comprises only one percent of GNP, and arms production is about 0.6 percent of industrial output. Concentration of defense production among the largest firms is very high. In 1989, among more than 2,000 defense contractors, Mitsubishi Heavy Industries was the largest with the equivalent of \$2.4 billion or 24 percent of total defense awards. Defense production tends to be a high cost, inefficient activity partly because of the government's strategy to achieve autonomy therein. Equipment, such as aircraft, produced under license domestically could be purchased for less abroad.

At the outset of the 1990s, pressures to maintain strong growth in defense seem to be easing while pressures to slow growth seem to be increasing. Economic considerations and a view that maintaining economic strength is necessary to achieve comprehensive security may cause many in Japan to question the policy of rapid defense growth if concerns heighten over inflation, high interest rates, and possible budget deficits.

Japan is now at an important turning point. To carry out its new roles and missions would require acquiring some or all of a series of expensive advanced weapon systems. This would be difficult if defense growth is reduced, particularly given increased prices, the

accumulation of past weapons obligations, greater support of U.S. forces in Japan, and other demands on the military budget. However, unless the Defense Forces can buy the equipment, for example, to conduct surveillance and project power over long distances, they will not be able to monitor the areas around Japan or the sea lanes out to 1,000 miles.

Steven Vogel turns next to the question of the Japanese defense industry. He concludes that it has some remarkable strengths, and some rather persistent weaknesses. The industry's major technological strength lies in its extraordinary commercial technology base, while its primary weakness lies in the realm of overall system integration. The greatest limitations on the Japanese defense industry, however, are not technological, but political. Japanese defense producers operate within a limited domestic market, and they are prohibited from exporting weapon systems. Nevertheless, the prospects for the industry's continued growth in the next ten years are quite good.

The Japan Defense Agency (JDA) has done its best, with a modest R&D budget, to stay not-too-far behind the United States and other Western nations in military technology. In recent years, the JDA's research wing, the Technical Research and Development Institute (TRDI), has been particularly successful in developing the ASM-1 series of anti-shipping missiles. The TRDI and the defense industry now hope to try out some of their best dual-use technology and to improve their skills in system integration by co-developing the fighter support experimental, or "FSX," with the General Dynamics Corporation of the United States.

The growing strength of the Japanese defense industry poses a challenge for the United States because Japanese producers are likely to increase their share of their internal market at the expense of U.S. exporters, and because they may eventually compete with U.S. producers in the United States or in third markets. U.S.-Japan co-development offers the United States a partial solution to this problem: it secures access to the Japanese market and access to Japanese technology. As the level of Japan's military technology advances, the United States stands to gain more, and to risk less, in working together with the Japanese.

In a paper on Japan's foreign aid, Larry Nowels notes that Japan emerged in the late 1980s as a leading international donor of foreign aid to developing nations. A growing component of Japanese initiatives to increase resource transfers to the Third World is Tokyo's foreign aid program—also referred to as official development assistance (ODA)—through which Japan provides economic grants and concessional loans to developing countries and multilateral aid agencies. A major recipient of foreign aid only 25 years ago, Japan now has an ODA program larger than that of the United States.

Japanese officials view the expansion of foreign aid as an important means by which to implement Tokyo's objective of making a greater "international contribution," including fostering development in the Third World. Japan has also used foreign assistance to accommodate pressures from Western nations, particularly the United States, who urge Japan to assume more responsibility in dealing with global economic problems. Japan has received consid-

erable credit for its rapid increase in foreign aid spending, particularly at a time when other donors are finding it difficult to continue with growing ODA levels. Tokyo has found that as its concessional assistance grows, its foreign aid program falls under closer scrutiny. Japanese officials acknowledge some of the shortcomings mentioned by critics and note that with such a rapid growth in foreign aid, the program is "about to enter a new and unexplored phase." But in other areas, where observers have identified what they consider weaknesses of Japan's ODA, Japanese officials are increasingly defending their aid policy in terms of their own recent experience as a developing country. They believe that principles important to Japan's transition from a poor nation to an international economic power, while different from practices of other Western donors, are relevant to the needs of many Third World nations and appropriate for their ODA policy.

The emergence of Japan as the world's leading bilateral foreign aid donor raises both opportunities and challenges for American policymakers. Faced with severe budget limitations and a desire for allies to assume a larger share of global security costs, the United States has encouraged Japan to increase its foreign aid spending and has frequently sought Japanese financial support for emerging foreign policy requirements of mutual interest. But an expanding Japanese aid program may also lead to the growth of Japanese markets and investment opportunities, may require the United States to share power and leadership in international aid policy matters, and possibly may reduce U.S. influence and leverage among some recipients.

INTERNATIONAL ECONOMIC RELATIONS

In Section VII, we turn to Japan's international economic relations. These relations are the vehicle by which the average American feels the effects of Japan's new economic power. It may be a consumer driving a new Toyota sedan or listening to a Sony Walkman or a U.S. farmer growing soybeans in anticipation of sales to Japan. It also may be an unemployed steelworker watching with dismay as Japanese steel is delivered to a nearby plant or a mid-western rancher eyeing the high price of beef in Tokyo's restricted market. And as economic ties between the two nations have deepened, new phenomena have appeared. It is not uncommon now to see Ohio-made Honda cars being shipped to Japan, Japanese-made Texas Instruments semiconductors being shipped to the United States, Americans working in Tokyo, or Japanese working in New York.

A major issue, not only for the United States but for Europe and nations of Asia has been access to Japan's market. In his study, Raymond Ahearn examines market opening in Japan and the challenges it poses for U.S. policy. Many indicators show Japan's market to be one of the most highly protected in the industrialized world. There are also some indicators that point to a certain level of market opening. As a result, the gap is narrowing between Japan and other industrialized countries on a number of measures of protection. The evidence surveyed indicates that Japan's market

is not nearly as protected as many critics argue, but not nearly as open as most Japanese maintain.

Success in increasing U.S. exports to Japan has occurred in those negotiations where a Japanese government barrier that could be eliminated was the binding constraint on increased sales. Conversely, failure to increase U.S. exports quite often occurred in those negotiations where Japanese private business practices were the binding constraint.

If current trends continue, access to Japan's market probably will improve in the 1990s due primarily to market opening negotiations, the strong yen, and new import promotion programs instituted by the government of Japan. This does not suggest that Japan's market will become as open as the U.S. market by the turn of the century, but that its behavior will continue to come closer to the U.S. level.

A challenge for U.S. Government policy in the 1990s will be to develop a consistent and coherent market opening strategy towards Japan. The basic elements of such a strategy could include agreement on what broad market opening objectives to pursue, the appropriate role of government in establishing priority targets, and the kind of pressure that should be applied.

A managed trade or results-oriented negotiating approach is highly contentious. Critics argue that such an approach is antithetical to free market principles. In cases where the Japanese government is pursuing industrial policy goals, however, a counterargument can be made. These are areas, such as fiber optics, superconductors, and new materials, where restrictions on imports are likely to be the strongest and where new restrictive policies continue to emerge when not aggressively challenged. Under these circumstances, explicit targets may be required to achieve import increases.

For Japan, U.S. pressure seems to be most effective when market-opening objectives are clearly defined; when there are Japanese interest groups lobbying for similar changes in Japanese policies; when top level foreign political leaders are united over the seriousness of the issue; and where time limits and sanctions are clear-cut.

There is, however, much less agreement on how often to press Japan strenuously because of the costs associated with more frequent threats and ultimatums. Constant U.S. pressures and public hectoring of Japan to open up specific markets can have negative commercial and political consequences. Constant U.S. pressures also could create a nationalistic backlash in Japan and can contribute to growing popular perceptions that the United States is an enemy instead of an ally.

The Bush Administration's 1990 decision not to re-designate Japan as a "priority foreign country" under the Super 301 process, in part, reflected these concerns. Some, however, protested this decision, arguing that Japan tends to backslide and renege on market opening commitments without foreign pressure. Determining the appropriate occasions to apply pressure assiduously to Japan, thus, involves fine and often contentious judgment calls.

In a paper on the bilateral relationship, William Cooper surveys U.S.-Japanese economic relations in the 1980s and the challenges that lie ahead. He concludes that the relationship is evolving.

While trade continues to occupy a predominant part of the relationship, financial ties have become increasingly important. The United States and Japan are becoming more economically interdependent. Japan is the second largest market for U.S. exports (taking 12 percent) and the largest provider of U.S. imports (20 percent). Furthermore, the relationship is becoming more complex, and the economic issues between them have become increasingly difficult to address.

Two sets of issues drive the bilateral economic relationship. First are the macroeconomic issues—the trade deficit and investment flows. The trade and current account deficits are manifestations of the savings-investment imbalances in the two nations. These imbalances were exacerbated over the 1980s when increased U.S. Federal deficit spending and private investment met a low and declining domestic savings rate to create a shortage of capital in the United States. Concurrently, the Japanese government tightened its spending and began reducing its budget deficit. This met with a high private savings rate and gave Japan a capital surplus. The different macroeconomic policies combined with the threat of protectionism in the United States resulted in capital flows from Japan to the U.S. that drove up the value of the dollar during the first half of the 1980s and exacerbated U.S. trade deficits.

Second are the microeconomic issues—market access in Japan, and Japanese competition in specific sectors. Many analysts attribute these issues to government policies and structural elements of the two economies—tariffs and nontariff trade barriers, government industrial policies that target sectors for special treatment, cultural biases, product quality, government regulations, and business practices, among others.

The outlook for U.S.-Japanese economic relations, therefore, depends on these two sets of factors. The analysis suggests two basic scenarios. One is of little or no change. Under these conditions, one would expect the picture for the 1990s to look much like that of the 1980s perhaps with some differences in degree. The United States would still incur trade deficits with Japan, and net flows of Japanese capital into the United States would exceed net flows of U.S. capital into Japan.

The second scenario would be of significant reductions in the savings-investment balances in the United States and Japan and significant changes in the government policies and structural elements. Under these conditions, one would expect a major reduction, if not elimination, in the trade imbalances, the market access problems, and other sector-specific issues that have generated economic frictions between the two countries.

The evidence to date suggests that, while the underlying conditions of the U.S.-Japanese economic relationship are changing somewhat, the shape of the relationship will likely remain about the same.

The United States and Japan confront opportunities and risks in the economic relations in the 1990s. They greatly expanded trade and investment between them in 1980s to their benefit and to the benefit of the world as a whole. They have the opportunity to build on that success in the coming decade. But they also face the risks of more bilateral friction, the growth of protectionism, and of ex-

cessive preoccupation with their bilateral relationship possibly impairing ties with other partners and the multilateral economic system as a whole.

Japan's enhanced economic power implies that it is likely to take an increasingly independent policy stance in world economic and strategic affairs. The era when Japan almost automatically supported U.S. policy positions is ending as Japan assumes the number two position at the International Monetary Fund, pours aid money into developing countries previously dependent on U.S. assistance, and becomes the world's largest creditor nation.

In a paper on U.S. trade friction with Japan, Alan Wolff notes that the friction has several underlying causes. He concludes that it is not caused, however, by Japanophobia or racism. The cause also is not that there are so many Japanese things that Americans want to buy, but so few American things that Japanese want to buy.

One real cause of the friction is the bilateral trade imbalance and its intractability despite the depreciation of the dollar. The problem does not lie in the size of the trade balance as much as in its composition. Japan tends not to import products that it exports. There is a lack of intra-industry trade.

Relations are further troubled by the arrogance in each sides' approach to the other. Japanese lecture Americans that they should try harder, while Americans try to remake Japan in their own image. Each tries to change the other. The alternative, however, leads to managed trade along the lines of the Europeans.

Wolff concludes that despite the energies being deployed by both governments to diminish the sources of friction, current efforts are insufficient. Managed trade proposals also could have undesirable results in which quantifiable goals were reached in ways that were not in the best interest of the United States. The solution depends a great deal on Japanese corporate behavior and their willingness to buy foreign products. In certain circumstances where the market is not operating fully, Wolff concludes that there needs to be a results-oriented policy.

The fundamental question is what Japan's vision is of its own role as a major world power. Japan has had a single-minded goal of developing a manufacturing export base. If it continues to do so as a world leader, it will create a far different world than the one which America envisages as ideal.

Stephen Marks examines, in his paper, recent **import-expansion measures** adopted by Japan. In April 1990, the government implemented a comprehensive set of import-expansion measures, including tariff elimination for many manufactured imports and tax breaks for manufactured imports subject to zero tariffs. The plan also included expanded funding and eligibility for loan programs to finance imports, import facilities, and foreign investment in Japan, as well as several new programs intended to promote the internationalization of the Japanese market. These measures were partly a response to concerns brought by the U.S. Government to the Structural Impediments Initiative (SII) talks with Japan.

The tariff cuts average roughly 3.8 percent and apply to a variety of manufactured items, including chemicals, metal and paper products, machinery, electrical products, transportation equipment,

and other manufactured goods. The tax measures are budgeted for three years, and apply to the items in these categories that are subject to zero tariffs. Manufacturers in Japan who increase the value of their imports of the eligible items by more than 10 percent above the highest previous level can take either a 5 percent tax credit on their increased imports of the eligible items or accelerated depreciation deductions of up to 50 percent of the increase in the value of their imports of these items. Wholesalers and retailers in Japan can defer payment of corporate income taxes on an amount of taxable income equal to 20 percent of the increase in the value of their imports of the eligible items.

The tariff cuts are welcome to the United States under any circumstances. In contrast, the tax measures will provide incentives for import expansion, but at the cost of an added layer of distortions in Japanese markets. For example, they favor manufacturers in Japan over other importers and could therefore give these manufacturers an unfair competitive advantage. Moreover, because capital goods are a large share of the eligible items, and because of the effects of the depreciation provision, the tax plan will tend to reduce the cost of capital for Japanese producers. This could increase the long-run savings-investment imbalances between the United States and Japan.

The effect of the tariff cuts and tax measures on the total foreign trade imbalances of Japan and the United States will tend to be small. Even if trade imbalances are not reduced substantially, however, the measures could cause an expansion of both Japan's imports and exports. This is a worthy objective in light of evidence that Japan is unusually closed to manufactured imports compared to other industrial countries.

In order to get a sense of the impact of the tariff cuts and tax measures on foreign trade flows, Marks estimated their direct effects on Japan's imports, based on assumptions that favor finding a large impact on imports. He found that the tariff cuts could increase Japan's imports by nearly \$600 million, with more than \$200 million of that from the United States. The increase in imports due to the tax measures is more uncertain, and is estimated to be between \$0.7 and \$2.9 billion per year. The U.S. share is between \$0.3 and \$1.2 billion. To put these effects in perspective, however, the import incentives given by the tariff cuts and tax breaks are dwarfed by the rise in the value of the dollar against the yen since late 1988, which has worked to inhibit rather than expand U.S. exports to Japan.

In a study on the opening of Japanese markets to U.S. agricultural products, Donna Vogt concludes that such market opening has been a long-standing goal of U.S. negotiations. Despite Japan's agricultural protection, however, it has been the largest single-country market for U.S. agricultural products for the last 15 years. The market took between 14 and 16 percent of total U.S. agricultural exports from fiscal year 1974 to 1982 and grew to \$8.2 billion in FY 1989. The major product exports that year were beef, feed grains, soybeans, fruits and vegetables, and wheat.

Several State and Federal Government programs assist private U.S. exporters to market their products in Japan by funding a variety of promotional programs and by negotiating trade agreements

that lower barriers to Japanese markets. Nonprofit commodity organizations, regional and State groups, and U.S. and overseas businesses and trade associations carry out these market development activities in Japan. Several State governments fund private U.S. companies to market products that are uniquely from that State. States and regional State organizations also administer funds from two U.S. Department of Agriculture (USDA) programs: the Targeted Export Assistance (TEA) program and the U.S. Market Development Cooperators Program (Cooperators).

Japan has recently negotiated several market opening agreements, including one on beef and citrus products, and has conducted a series of internal reforms that have complemented the changes in demand within Japan for agricultural products. Japan, however, maintains a number of import barriers that prevent the United States from supplying greater amounts of food and fiber. Two Japanese policy objectives, national food security and the maintenance of rural income on a par with urban income, hinder U.S. export sales. In addition, Japan's farm policy structure has supported protectionist barriers that prevent some expansion of markets for certain U.S. products.

Even with recently reduced barriers to trade, many U.S. analysts and businesses continue to believe that further policy changes opening Japanese markets are needed. There continue to be three types of barriers hindering market access for agricultural products: tariffs and quotas such as the ban on rice imports; standards that prevent market access for health and sanitary reasons or for additives, and packaging requirements; and structural barriers such as state trading monopolies and distribution systems that prevent the free flow of food and agricultural products throughout Japan.

Robert Aliber's study of **U.S.-Japanese interactions with respect to capital flows and trade imbalances** indicates that the puzzle of the 1980s, especially in the first half of the decade, has been the sharp increase in both Japan's trade surplus and capital deficit. Japan generated a large export surplus concurrent with a rapid rise in its purchases of U.S. dollar securities and real assets. The Japanese—and many Americans—suggest that Japanese investors were providing financing for the U.S. trade deficit, attracted by the high interest rates on U.S. dollar securities, which in turn were a result of the large U.S. fiscal deficit. In short, the U.S. trade deficit induced the inflow of capital. The competing view is that Japanese purchases of U.S. dollar securities and real assets induced the U.S. trade deficit. The capital account drove the trade balance.

Aliber concludes that capital flows were dominant. The major factor driving Japan's external accounts for the last twenty years has been its excess supply of saving. In the early 1980s, this excess supply led to both sharp increases in the prices of Japanese equities and real estate and to large Japanese purchases of U.S. dollar securities and U.S. real assets.

Before Japanese investors could buy U.S. dollar securities and U.S. real assets, they first had to buy U.S. dollars in the foreign exchange market. Their purchases of dollars caused that currency to appreciate and induced a major increase in the U.S. trade deficit. This brought a deflationary effect on the U.S. economy. The U.S. fiscal deficit then rose because profits and income increased

less rapidly. Because the U.S. economy was operating with considerable excess capacity in tradable goods at that time, Aliber concludes in his analysis that the costs to the United States of Japanese purchases of U.S. dollar securities and real assets has been high, perhaps higher than the benefits.

Japanese financial markets appear in disequilibrium, in that the level of Japanese equity prices remains excessively high relative to expected corporate profits and returns on alternative investments. Any further increase in interest rates in Japan is likely to put further downward pressure on Japanese equity and land prices. As wealth declines, spending, particularly on imported luxuries, also could decline. Personal saving could increase at the same time that the investments in new plant in equipment in Japan created new capacity. Japanese firms would tend to increase export sales as this growth in capacity exceeded the growth in domestic demand. The result would be a rising trade surplus for Japan combined with reduced purchases of U.S. securities because of greater investment opportunities at home. The value of the yen also would rise.

Richard Cronin's paper on a Japan-dominated Asia Pacific region suggests that Japan's emergence as the "core-economy" of the Asia-Pacific region and Tokyo's function as a coordinating economic nerve center may be a more relevant concept than an actual "Yen Bloc." He notes that while Japan has become the dominant investor in the region, especially in Southeast Asia, Japanese owned or controlled offshore manufacturing investment remains much more oriented towards the U.S. market and the growing regional market, rather than the Japanese home market. Accordingly, a formal yen block has little attraction to Japan's economic policy makers, but the goal of promoting economic development that complements Japan's own evolving industrial structure, and that avoids the development of a competitive duplication of manufacturing capacity, has a powerful appeal.

Cronin's article notes that the main obstacle to the Japanese "flying geese" model is likely to be resistance of the Newly Industrialized Countries (NIEs) and would-be NIEs such as Thailand and Malaysia to the Japanese concept of an appropriate economic "division of labor." Taiwan and South Korea in particular desire to reduce their dependence on Japanese technology, while would-be NIEs would rather achieve an across-the-board enhancement of their industrial self-sufficiency rather than serving simply as parts and component producers. Moreover, due to parallel appreciations of their own currencies against the dollar and other increases in domestic costs, the NIEs are following Japan's lead in investing in Southeast Asia, thereby creating a much more complex pattern of intra-Asian investment and trade. These factors, together with Japan's continued import resistance, the possibility of greater U.S. protectionism and/or a sharp slowdown in the global economy, all suggest that heightened competition in Asia is as likely as the development of a Japan-centered trading bloc.

I. FRAMEWORK OF ECONOMIC POLICY

RECENT TRENDS AND OUTLOOK FOR THE JAPANESE ECONOMY

By Craig Elwell ¹

CONTENTS

	Page
Recent Trends.....	1
The Changing Structure of Growth in Japan.....	2
The Trade Surplus Slowly Shrinks.....	3
Inflation Pressures Mount.....	4
Decade of Contractionary Fiscal Policy.....	5
The Outlook.....	6
Ebbing Investment Spending Will Slow Economy.....	6
Will Slower Growth Slow Inflation?.....	7
Uncertain Course for Trade Surplus in Short Run.....	8
Beyond 1990.....	9
Uncertainties in the Outlook.....	9
Inflation.....	9
Investor Expectations.....	10
The Yen.....	11
Stock Market Volatility.....	11

RECENT TRENDS

In the 1980s, Japan's macroeconomic performance was consistently excellent. As shown in table 1 below, real GNP expanded rapidly, averaging nearly 4.5 percent per annum over the decade. Growth at such a pace was well above the strong 3.0 percent rate turned in by the United States over that decade, and far above the more typical 2.5 percent annual average achieved by the European Community in the same period. While Japan's rate of economic growth may have been well above that of other industrial economies, it was well below the pace Japan had set in the 1960s and early 1970s, when growth averaged above 10 percent per annum. This seems consistent with the expectation that growth in Japan would slowly but steadily decelerate to a speed more like that of other industrial nations.

Japan's rapid growth was all the more impressive in that it did not cause inflation to accelerate. Quite the opposite, inflation decelerated. Consumer prices rose 5.0 percent as the decade began in 1981, but, as is evident from the table, in the final year of the

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Table 1. MACROECONOMIC TRENDS IN THE JAPANESE ECONOMY 1980-1990

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
Real GNP (Annual % change)	4.3	3.7	3.1	3.2	5.1	4.9	2.5	4.5	5.7	4.8
Consumer Price Index (Annual % change)	7.7	5.9	2.7	1.9	2.3	2.0	0.6	0.1	0.7	1.7
Unemployment Rate	2.0	2.2	2.4	2.6	2.7	2.6	2.8	2.8	2.5	2.3

Source: OECD

decade inflation of consumer prices had slowed to below 1.0 percent per annum. Of course, inflation performance improved markedly in most industrial countries in this period, a tribute to the absence of oil price shocks, weak commodity prices, and more prudent monetary policy, but none achieved this disinflation while pursuing rapid economic growth. (It remained the case, however, that the *level* of consumer prices in Japan generally remained well above that in other industrial nations.) Japan's unemployment rate hovered between 2 and 3 percent over the 1980s. While Japanese unemployment was low in comparison to other large industrial nations (in the United States the average unemployment rate over the decade was about 6 percent, while in the European Community, it was near 10.0 percent), it was significantly above a rate of 1 to 2 percent that Japan typically achieved in the previous decade.

THE CHANGING STRUCTURE OF GROWTH IN JAPAN

What cannot be seen in these broad macroeconomic indicators is that in the 1980s the Japanese economy traversed a sharp change in the structure of its economic growth; refocusing the sources of growth from external to domestic demand. As shown in table 2, for the first half of the 1980s, net exports were a major contributor to overall growth. In this period, a very weak yen gave strong stimulus to Japan's export sales and added to the Japanese reluctance to import. In 1986 this situation changed dramatically. The yen rose sharply, and the external sector became a dwindling and, eventually, a negative source of growth as the second half of the 1980s progressed. Real net exports declined, as did the overall growth rate. In fact, 1986 might be viewed as a recession year by Japanese standards. By 1987, however, domestic demand sources (consumer spending, business investment, and government spending) expanded greatly, filling the gap left by a sagging foreign sector, and for the remainder of the decade domestic demand, particularly investment spending, has given principal momentum to overall growth in the economy. Thus, Japan's above average macroeconomic performance in the 1980s is all the more remarkable for the agility with which it negotiated this major structural change.

A burgeoning of investment spending on plant and equipment was central to the rise of domestic demand in Japan in the last years of the 1980s. As shown in table 3, growth in investment spending exploded to annual rates of 16 percent and 18 percent in 1988 and 1989 respectively. Through most of the 1980s investment share of total output averaged between 28 to 29 percent, down considerably from the 32 to 35 percent share of the high growth era of the 1960s and the early 1970s. With this recent burst of investment

Table 2. COMPONENTS OF JAPAN'S REAL ECONOMIC GROWTH

	Total Rate	Domestic Component		External Component
		Private	Public	
1981	3.3%	1.5%	0.5%	1.2%
1982	3.2	2.6	0.1	0.5
1983	3.7	1.9	0.2	1.5
1984	5.1	3.7	0.2	1.3
1985	4.5	4.0	-0.3	0.8
1986	2.7	2.8	1.3	-1.4
1987	5.4	5.9	0.4	-0.9
1988	5.3	6.6	0.2	-1.5
1989*	4.6	5.4	0.0	-0.7

* Calculated from the government growth estimate.

Source: Japan Economic Institute.

spending however, that share was back to over 32 percent of GNP in 1989.

Table 3. GROWTH OF JAPANESE PRIVATE CONSUMPTION AND INVESTMENT SPENDING, 1980-1989

	(Percent change)										
	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	
Real Private Consumption Expenditure	1.4	1.3	4.1	3.2	2.7	2.7	3.1	4.2	5.0	3.0	
Real Private Non-Residential Fixed Investment	7.8	5.4	2.5	2.7	11.5	12.7	5.8	8.0	16.0	18.0	
Real GNP	4.3	3.7	3.1	3.2	5.1	4.9	2.5	4.5	5.7	4.8	

Source: Data Resources, Inc.

This recent vigor of business investment is the result of a confluence of forces. In many industries capacity constraints have dictated major expansion. In addition, excellent corporate profitability has afforded Japanese industry enhanced means to invest. But perhaps of greatest importance, many analysts judge, is strong business sector confidence in the future of Japan's domestic economy. Also, although it is difficult to assess its importance, the prospect of a more streamlined, unified Europe, and a reinvigorated U.S. economy may have prompted Japanese industry to invest to maintain competitiveness in the world economy in the 1990s and beyond. This motive would, however, suggest that net exports might again become an important source of growth in the Japan of the future.

The consumer has also come forward in the late 1980s as a source of demand in Japan. Real spending by Japanese consumers grew 4.5 percent and 5.0 percent in 1987 and 1988, respectively. In 1989, implementation of a consumption tax dampened, most likely temporarily, consumer spending to a nevertheless respectable rise of about 3.0 percent. It seems likely that in an ever-wealthier Japan the consumer will persist and grow as an important source of demand.

THE TRADE SURPLUS SLOWLY SHRINKS

Japan's large current account trade surplus continued to fall in 1989, down to about \$57 billion from a peak of more than \$87 billion in 1987 [see table 4]. The change in the current account sur-

plus as a percent of GNP is more dramatic: going from 4.3 percent in 1987 to 2.0 percent in 1989. Much of the movement in the current account was in its merchandise trade subcategory. That balance has fallen from a peak of over \$96 billion in 1987 to near \$77 billion in 1989. The strongest change in merchandise trade has been on the import side. Between 1980 and 1986 the value of Japan's merchandise imports fell about 10 percent. Between 1986 and 1989, however, imports have grown over 70 percent in value terms. Even as the yen strengthened in the latter half of the 1980s, Japan's export sales continued to grow, up about 31 percent between 1986 and 1989. Japan's service's deficit also widened about \$10 billion over this period.

Table 4. JAPANESE BALANCE OF PAYMENTS, 1980-1989

(Millions of Current U.S. Dollars)

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
Current Account Balance...	-10,746	4,770	6,850	20,799	35,003	49,169	85,845	87,015	79,631	56,975
Trade Balance.....	2,125	19,967	18,079	31,454	44,257	55,986	92,827	96,386	95,012	77,130
Merchandise Exports.....	-126,736	149,522	137,663	145,468	168,290	174,015	205,591	224,605	259,765	269,631
(% change).....	25.2%	18.0%	-7.9%	5.7%	15.7%	3.4%	18.1%	9.2%	15.7%	3.8%
Merchandise Imports.....	124,611	129,555	119,584	114,014	124,033	118,029	112,764	128,219	164,753	192,501
(% Change).....	25.4%	4.0%	-7.7%	-4.7%	8.8%	-4.8%	-4.5%	13.7%	28.5%	16.8%
Services Balance.....	-11,343	-13,573	-9,828	-9,106	-7,747	-5,165	-4,932	-5,702	-11,263	-15,925
Exchange Rate Yen per \$..	227	221	249	238	238	239	169	145	128	138
(% Change).....	3.5%	-2.2%	12.9%	-4.6%	0.0%	0.4%	-29.4%	-14.2%	-11.4%	7.7%

Source: DRI

The reduction of Japan's trade surplus is largely the delayed consequence of the 26 percent appreciation of the yen (against a basket of foreign currencies) between 1984 and 1989. The appreciation increased the world market price of Japan's exports and reduced the home market price of imports, and trade flows have responded strongly (particularly for imports) to this change in relative competitiveness.

This change in competitiveness has also meant that in the late 1980s, net exports have not been a source of growth. Quite the contrary, as was shown in table 2, the external sector has made a negative contribution.

INFLATION PRESSURES MOUNT

The joint effects of steady or falling oil prices, weak commodity prices, and an appreciating currency, and a not overly expansive monetary policy virtually erased inflation in the last half of the 1980s. But in 1989, there was evidence of some rekindling of inflationary flames: the consumer price index rose 2.3 percent, up substantially from a 0.7 percent gain in 1988; the GNP price deflator rose 1.5 percent, well above the 0.5 percent rise a year earlier; and wholesale prices also rose 2.6 percent after actually *falling* 1.3 percent in 1988.

Several forces are now putting upward pressure on prices. In 1989 there was a significant weakening of the yen that raised the price of imports, commodity prices have also risen, and the recent imposition of a consumption tax has added some upward pressure

Table 5. INFLATION INDICATORS IN JAPAN

(Percent change)

Year	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
GNP Deflator.....	3.7%	3.3%	1.9%	0.8%	1.2%	1.5%	1.9%	-0.2%	0.5%	1.5%
Consumer Price Index.....	8.0%	4.9%	2.7%	1.9%	2.3%	2.0%	0.6%	0.1%	0.7%	2.3%
Wholesale Price Index.....	17.8%	1.4%	1.8%	-2.2%	-0.3%	-1.1%	-9.1%	-3.7%	-1.3%	2.6%
Wages.....	8.5%	8.2%	5.6%	5.2%	5.4%	4.7%	5.1%	4.1%	6.1%	7.4%
Money Supply (M2).....	7.2%	11.0%	7.9%	7.3%	7.8%	8.7%	9.2%	10.8%	10.2%	12.0%

Source: DRI

on prices. But the inflation effects of these factors can be expected to be temporary.

More important as an enduring indicator of upward price pressure has been an accelerated rate of increase in wages. In 1987, manufacturing wages rose 4.1 percent, the slowest rate of climb in the decade. But in 1988, wage increases jumped substantially to an average gain of 6.1 percent, and accelerated further in 1989 to a 7.4 percent annual pace.

At a more fundamental level, many economists argue that the incipient inflation pressure now evident in the Japanese economy is the delayed consequence of an overly expansive monetary policy dating from about mid-1986. That policy regime had its roots in what was then seen as the necessity by the United States and Japan of slowing and then stabilizing the yen/dollar exchange rate. In the short-run, at least, an acceleration of growth in the money stock has kept interest rates in Japan low relative to rates in the United States, discouraging net capital flows into Japan (or out of the United States), dampening the demand for yen-denominated assets and, in turn, the yen's exchange rate relative to the dollar. Of course, the corollary of low domestic interest rates is expanding interest-sensitive domestic demands and a risk of inflation in an essentially fully employed economy. In this period, the Bank of Japan saw the maintenance of a satisfactory yen/dollar exchange rate as the first order of concern for monetary policy, seeming to discount the longer-term inflationary consequences of that policy program. The Bank of Japan apparently changed course in Spring 1989 however, raising the discount rate three times over the remainder of the year. In response, most market interest rates have also risen significantly during 1989. Somewhat slower growth and a strengthened yen and slower inflation are the expected consequences.

DECADE OF CONTRACTIONARY FISCAL POLICY

The 1980s were a period of fiscal consolidation in Japan. In the mid- to late 1970s Japan had relied heavily on fiscal stimulus to buoy the economy in the face of slowed private sector spending and limited external demand growth. In 1978 the government deficit peaked at 5.5 percent of GNP, and by 1980 the deficit still stood at 4.4 percent of the GNP. Large budget deficits also led to a rapid accumulation of government debt. In 1970 the gross debt-to-GNP ratio was 12.1 percent with interest payments equal to 0.6 percent

of GNP. But by 1980 the debt/GNP ratio had leaped to 52 percent of GNP with interest payments equal to 4.5 percent of GNP.

This was not a program with which the Japanese government was comfortable. Over the course of the 1980s, it strongly reversed direction, reducing government budget deficits and stemming the accumulation of debt and interest payments. This program of fiscal consolidation was successful (as shown in table 6). By 1987, the government (at all levels) budget achieved a surplus equal to 0.6 percent of GNP, and by 1989 that surplus had grown to 1.8 percent of GNP. One can also see in table 6 that the impetus of deficit reduction has come from the central government. The central government deficit persists, but it has fallen from 6.8 percent of GNP in 1980 to 1.4 percent in 1989. Even with this degree of fiscal consolidation, Japan's gross public debt to GNP ratio continued to climb, albeit ever more slowly, over most of the decade, peaking at about 76 percent of GNP in 1987.

Table 6. GOVERNMENT BUDGET POSITION IN JAPAN, 1980-1989

(As percent of GNP; surplus (+) or deficit (-))

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
General Government Budget Balance.....	-4.4%	-3.8%	-3.6%	-3.7%	-2.1%	-0.8%	-0.9%	+0.6%	+1.3%	+1.9%
Central Government Financial Balances	-6.8%	-6.5%	-5.2%	-4.9%	-4.1%	-3.7%	-3.0%	-2.0%	-1.7%	-1.4%

Source: OECD

It is clear from these data that fiscal policy was generally contractionary during the 1980s. This underscored the central importance of the private sector in propelling the economy to its excellent growth performance over this period. This is in contrast to the United States which relied heavily on fiscal expansion to propel the economy in the 1980s.

THE OUTLOOK

Looking to the prospects for Japan's economy over the next one to two years, most analysts see the same forces that have been pre-eminent in recent years continuing to shape macroeconomic events [see table 7]. Economic growth will remain strong. Domestic demand growth (not external demand), propelled by robust investment spending and brisk consumer demand, will continue to lead the economy upward in 1990 and beyond. The inflation rate is expected to move up moderately, as rising demand pressure pushes up wages and other production costs, but the Bank of Japan is expected to forestall any major reacceleration of inflation.

EBBING INVESTMENT SPENDING WILL SLOW ECONOMY

The Japanese government's forecast projects real GNP to grow about 4 percent in 1990, as does DRI, the Lexington, Massachusetts forecasting company. But most private Japanese forecasts expect growth to average nearer 4.5 percent this year. There is consensus among these forecasters that domestic demand will lead the economy and that its fastest-growing component will be business investment. The Japanese government projects that real spending in capital goods will rise 7.3 percent in 1990, well off the 17.3 and 14.5

Table 7. FORECASTS FOR SELECTED MACROECONOMIC VARIABLES IN 1990

(Percent change unless noted otherwise)

	Real GNP	Real Consumer Spending	Real (Non-residential) Capital Spending	Consumer Prices	Current Account Surplus*
Japanese Government.....	4.0%	4.6%	7.3%	1.6%	56.0
Consensus of Private Japanese Forecasters**.....	4.4	4.5	9.3	1.7	59.2
DRI.....	3.9	4.2	8.7	3.1	42.9

* In billions of dollars.

** Average of forty Japanese private sector forecasts

Source: Japan Economic Institute and DRI/McGraw-Hill.

percent pace achieved, respectively, in 1988 and 1989, but well in excess of the overall growth rate. Most private forecasts in Japan expect more expansion in investment spending than does the government, with real increases in the 9 to 10 percent range widely projected. DRI is only slightly less optimistic about business investment spending with a projected increase of 8.9 percent in 1990.

It is not surprising that investment spending will be more dampened than in the last three years; rates of growth of that size are not sustainable over the long term in a relatively mature economy like Japan. It is reasonable to expect that the number of profitable domestic investment opportunities will tend to dwindle after a period of sustained acceleration of investment spending. Moreover, the recent rise of interest rates likely erases the profitability of many projects promising only marginal return. Differences between the government's and most private forecasters' more optimistic projections of investment spending may, in part, reflect the traditional conservatism of Japanese government projections, but also differing assessments of the business sector's confidence in the future and their willingness to invest.

Real consumer spending, an important part of the economic expansion over the last three years, is expected to continue to grow at a healthy pace in 1990. In the government's projection, consumer spending rises 4.6 percent in 1990, significantly faster than the 3.0 percent rise recorded in 1989, but generally in line with the pace set in 1987 and 1988. Private Japanese and government projections for consumer spending in 1990 are pretty much in accord.

The Japanese consumer appears to be on a bit of a spending spree. Brisk economic growth and tight labor markets have buoyed household income. But it also seems that Japanese consumers are now more willing to spend that income rather than save it. For many families, high savings rates were directed toward the eventual purchase of a house. But recent land price hikes may have put that dream beyond reach for many families. In response, households have now dipped into savings to buy long-deferred consumer goods.

WILL SLOWER GROWTH SLOW INFLATION?

Some moderation in inflation is expected in 1990 by government and private Japanese forecasters alike. This is consistent with the moderate slowing of growth that is expected. Inflation projections,

however, depend heavily on the path the yen takes in the year ahead. A common assumption across forecasts is for the yen to remain in a range between Y135 to Y145=\$1.00. That is not an assumption that any forecaster predicts with great confidence, and any significant weakening or strengthening beyond this range will raise or lower the actual inflation rate relative to the projected rate. In contrast to this forecast of deceleration, DRI judges that despite slower growth, continued upward wage pressure and recent increases in oil and commodity prices will accelerate inflation in 1990.

UNCERTAIN COURSE FOR TRADE SURPLUS IN SHORT RUN

Japan's balance of payments is an area of considerable uncertainty. While there is no general expectation that the trade sector will be a major source of growth, there is doubt that Japan's balance of payments surplus will continue to shrink in the immediate future. Some projections even see the surplus widening modestly. The immediate force at work here is the yen's exchange rate. No further appreciation of the yen has occurred since 1987, and the effects of that earlier large appreciation on trade flows is about spent. Moreover, in 1989, the yen actually weakened significantly. That may provide some upward push to export sales in 1990—perhaps enough to raise the overall trade surplus in 1990 and perhaps also in 1991.

In the Japanese government's projection for its Fiscal Year 1990 (April 1990–March 1991), the current account surplus shrinks modestly, down to \$56 billion from \$61 billion in JFY 1989 (of course, this is down substantially from a surplus of over \$94 billion in JFY 1986). Private forecasters (in Japan) are about evenly divided between those who see further (albeit modest) shrinking of the current account and those who see the surplus widening over the near term. The consensus of these forecasts leaves the surplus essentially unchanged for JFY 1990 at \$59.2 billion. DRI, however, sees the surplus falling more substantially to about \$43 billion. Despite the recent weakening of the yen, DRI anticipates small growth in exports and another year of double digit growth for imports as momentum from the earlier appreciation of the yen remains dominant. Despite the rather minute change in the absolute size of the surplus, in most projections it would nevertheless fall significantly as a share of GNP, down from 2.0 percent in 1989 to near 1.5 percent in 1990.

Over the longer term, the widely held expectation is that the current account and the trade surpluses will slowly but steadily shrink, but far from vanish. Data Resources projects Japan's current account surplus falling to the \$40 billion to \$50 billion range by the last years of the decade. As a share of GNP, a surplus of that size would likely represent less than 1 percent of Japanese GNP as compared to a 4.8 percent share in 1986 when that surplus was at its peak. It is interesting that in the Data Resources forecast only about half of the shrinking of the current account is due to a smaller merchandise trade surplus. The remainder of the fall results from a widening of Japan's services deficit.

Many economists reason that the rising need for savings in the world economy makes it possible and desirable for Japan to continue to run a current surplus of significant size. Absent this Japanese savings flow, world interest rates would likely rise and world growth suffer.

This direction and degree of change in Japanese trade flows would likely require an exchange rate for the yen (on a trade-weighted basis) 30 to 40 percent above the current yen level by the end of the decade. This degree of change would be consistent with a rise of the yen against the dollar from the current Y145/U.S.\$1.00 to near Y100/U.S.\$1.00 by the late 1990s. But of course the exchange rate itself is not an instrument transmitting the influence of change in fundamental macroeconomic forces. In Japan's case a smaller trade surplus is contingent on Japan's continuing to advance the level of domestic demand relative to domestic production. This requires, of course, that some combination of public and private spending, for consumption or investment, continue to pace economic expansion. If private investment spending ebbs, as it is most likely to do, then the consumer and the government would have to take up the slack to ensure continued shrinking of the current account surplus.

BEYOND 1990

For the years just beyond 1990, there is the expectation that the general pattern of growth seen recently, one dominated by domestic demand growth, will continue, albeit at a more moderate pace, as business exuberance fades and concerns over rising inflation pressures prompt some "braking" by the central bank. Fiscal policy, with the task of budgetary consolidation well in hand, is expected to assume a broadly neutral stance. As already noted, Japan's trade surplus is seen falling or rising slightly, depending on the forecaster examined. Table 8 provides projections for selected macroeconomic variables through 1991 obtained from the OECD and the IMF, and through 1992, from DRI. The weaker growth outlook forecast by DRI stems largely from a far more pessimistic assessment of business investment growth and a significantly stronger yen/dollar rate. In contrast the OECD and the IMF assumptions of fixed real exchange rates and unchanged macroeconomic policies account for the widening of the current account surplus in their projections.

UNCERTAINTIES IN THE OUTLOOK

A variety of economic risks loom on the horizon for Japan. Each could significantly alter the Japanese economy's prospects in the years just ahead.

Inflation

Incipient inflation pressures and a central bank more strongly inclined to resist inflation could lead to policies that slow growth. Monetary tightening and rising interest rates will certainly dampen interest-sensitive demands and slow the speed of the total economy. Inflation pressures have risen, but it remains unclear whether they are seen to be under control by the Bank of Japan.

Table 8. LONGER-TERM PROJECTIONS OF SELECTED MACROECONOMIC VARIABLES

(Percent change unless otherwise noted)

	1990	1991	1992
OECD			
Real GNP	4.5	4.3	N.A.
Domestic Demand	4.6	4.0	N.A.
Real Consumer Spending	3.7	3.8	N.A.
Real Business Investment Spending	9.1	6.2	N.A.
Consumer Price Index	2.7	2.6	N.A.
Current Account Surplus*	\$61	\$69	N.A.
IMF			
Real GNP	4.4	4.2	N.A.
Domestic Demand	4.7	3.9	N.A.
Real Consumer Spending	4.2	3.9	N.A.
Real Business Investment Spending	9.6	5.5	N.A.
Consumer Price Index	2.3	1.3	N.A.
Current Account Surplus	\$57.4	\$73.4	N.A.
DRI			
Real GNP	3.9	3.3	3.7
Domestic Demand	4.6	3.2	3.7
Real Consumer Spending	4.2	4.0	4.0
Real Business Investment Spending	8.9	2.4	3.8
Consumer Price Index	3.1	2.5	2.5
Current Account Surplus*	\$42.9	\$50.9	\$48.7

Billions of current U.S. dollars.

Source: OECD, DRI, and IMF.

Certainly an unexpected boost in commodity prices or further weakening of the yen could add to inflationary pressures and induce a contractionary response by the central bank.

Investor Expectations

Strong business sector confidence in Japan's economic future propels the ongoing investment boom, and, through that, the total economy. Such expectations can be quickly eroded, however. Slower than expected growth in other industrial economies, rising uncertainty over the course of monetary policy, or even some fallout from recent stock market volatility could lead to a sizeable retrenchment of investment plans in the business community. Even if other sectors such as net exports or public investment ultimately fill the gap, near-term growth would certainly suffer. Over the longer term, one might question the international political and economic viability of Japan returning to net exports as a major source of growth and also question the realism of expecting a major public investment boom. Also, over the longer term, there is probably good reason to expect the Japanese consumer to be an ever larger part of the growth generating process. But it would seem that for the near and medium term, continued rapid growth in Japan will hinge importantly on continued confidence in the business sector as to the desirability of relatively sizeable spending on plant, equipment, and R&D.

The Yen

The significant weakening of the yen in 1989 is not a sustainable course. Recent elevations of interest rates by the Bank of Japan were certainly, in part, an attempt to strengthen the yen. How far this program will go is unclear, but there is clearly a risk that further interest rate hikes would significantly dampen economic growth. While most economists feel that an appreciation of the yen is needed to trim Japan's trade imbalance, if the yen rises too rapidly in any one year, the dampening effects on net exports might not be fully offset by an increase in domestic demand and overall growth would be slowed.

Stock Market Volatility

There is concern that recent stock market volatility may carry a near-term risk to economic stability. The relative ease with which the U.S. and Japanese economies traversed the stock market crash in October of 1987 perhaps indicated that such financial market events are not necessarily big events for the real economy. This de-linking may be more pronounced in Japan where household net worth is far less dependent on trends in the financial markets than is true of the United States. Of course, in 1987 the Japanese Ministry of Finance was able to maintain "discipline" in the Japanese market by "jawboning" major holders not to sell stock. However, the recent financial liberalization that has occurred in Japan could mean that there has occurred a significant loss of government control, and the loss of the ability to build "fire breaks" against spill-over from financial markets to the real economy.

FRAMEWORK OF MONETARY POLICY IN JAPAN

By Shinji Takagi ¹

CONTENTS

	Page
Summary	12
Introduction	13
Macro-Structure of Monetary Policy	13
Regime Change of 1978	13
Workings of the New Monetary Regime	14
Bank of Japan Forecasts	16
Micro-Structure of Monetary Policy	18
Reserve Requirement System	19
Discount Window Lendings	20
Reserve Progress Ratio	20
Operating Tools of Monetary Policy	22
Provision of Base Money	22
The Interbank Market	23
New Operating Procedures	25
Conclusions	26

TABLES

1. Official Forecast Errors of Money Supply Growth	16
2. Performance of Money Supply Forecasts	18

FIGURES

1. Rates of Monetary Growth and Inflation in Japan	15
2. Forecast and Actual Growth of Broad Money in Japan	17
3a. Japanese Discount and Call Money Rates	21
3b. U.S. Discount and Federal Funds Rates	21

SUMMARY

The Japanese monetary authorities have recently pursued price stability as the primary policy objective by paying close attention to the maintenance of stable growth of broad monetary aggregates averaged over the medium term. The policy of announcing its forecast monetary growth has allowed the Bank of Japan to provide the public with a credible indication of the medium-term stance of monetary policy without incurring the possibly negative consequences of committing to a monetary target that is rigid and legally binding. It is likely that they will continue to pursue a prudent monetary policy directed at price stability in the coming years.

The discretionary actions of the central bank play a far greater role in the operation of monetary policy in Japan than in the

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United States. Although the market mechanism has become increasingly important and further changes are forthcoming, the central bank's principal operating tools remain direct lendings (at a discount rate set below market interest rates) and operations in the interbank market where, as a matter of practice, almost all transactions are made through the mediation of money market brokers. These practices may raise international friction in the future to the extent that they are perceived as giving unfair advantage to large Japanese banks and as increasing the costs for foreign banks which rely on the interbank market for much of their funding.

INTRODUCTION

Japan's monetary policy is carried out by its central bank, the Bank of Japan. The Bank's highest decision-making body is the Policy Board, which is composed of the Governor, four representatives of the private sector, and two non-voting representatives of the government. The Policy Board has authority to make changes in official discount rates, reserve requirements, and other aspects of monetary policy, often in consultation with the Ministry of Finance.

This chapter outlines the framework of monetary policy in Japan. In particular, it discusses the workings of the monetary regime (macro-structure), certain institutional features of the monetary control mechanism (micro-structure), and the operating tools and procedures of the central bank. Finally, some possible policy implications for the United States are offered.

MACRO-STRUCTURE OF MONETARY POLICY

Since July of 1978,² the Japanese monetary authorities have defined the medium-term stance of monetary policy on the basis of broad monetary aggregates. The regime is not the type of monetary targeting practiced in the United States and elsewhere, whereby the central bank commits itself to attaining a certain targeted range of monetary growth. Instead, it is a rather "loose" system under which the central bank announces a non-binding and qualitative forecast of likely monetary growth. Price stability has been the overriding concern of the monetary authorities in recent years, although other factors (such as exchange rate developments) have also been taken account of in the conduct of monetary policy.

REGIME CHANGE OF 1978

A fundamental shift in the monetary regime was precipitated by the rapid inflation of 1973-74. Earlier in 1972, the monetary authorities began to pursue an expansionary monetary policy in reaction to slower economic expansion in 1971, the persistent balance of payments surplus in 1972, and the prospect of a deflationary impact of the 16-percent revaluation of the yen in December 1971. As a result, the rate of wholesale price inflation increased from 3 percent per year in the third quarter of 1972, to 19 percent in the first quarter of 1973. With the quadrupling of oil prices in late

² The *de facto* shift in the monetary regime took place in July 1975.

1973, the rate of inflation rose to 58 percent in the first quarter of 1974 (figure 1),³ while the rate of real GNP growth turned negative for the first time in post-war history.

It was against this experience that the Bank of Japan began to doubt the existence of an exploitable trade-off between inflation and output, and made a shift away from active countercyclical use of monetary policy. Instead, the monetary authorities came to define their role more narrowly as that of providing a stable and low-inflationary monetary environment conducive to long-term economic growth. In July 1975, the Bank of Japan announced its intention to pay "sufficient attention" to the movements of broad money (M2). In July 1978, the Bank began announcing quarterly "forecasts" of the annual rate of growth of M2 plus CDs (M2 before the third quarter of 1979).⁴

WORKINGS OF THE NEW MONETARY REGIME

Under the current monetary regime, the Bank of Japan announces, toward the end of the first month of each quarter, a "forecast" of the growth rate of M2 plus CDs for that quarter. The rate of growth is calculated as the rate of change of the average balance for the current quarter over the average balance for the same quarter of the previous year and is expressed in terms of a broad quantitative range, such as "around 8 percent" or "at the 8-percent level." In explaining this practice, the Bank has expressed the view that unforeseen events would preclude any possibility of forecasting with exactness and precision, making it unwise "to preannounce the future money supply in the form of a fixed number and invest this number with normative significance."⁵

The choice of annual growth rates calculated on the basis of quarterly average balances reflects the view of the Bank of Japan that, because the effect of money on prices and nominal GNP is unpredictable, "price stabilization requires control only of movements of money supply averaged over rather long periods."⁶ Similarly, the choice of broad money reflects the Bank's long-run orientation which naturally emphasizes *potential* means of settlement and the fact that it has a stronger correlation with *future* income, a more relevant target for long-run price stabilization.⁷

In the conduct of this "money-focused" policy, the Bank of Japan has preferred to use the term "forecast" ("*mitoshi*" in Japanese) and avoided the use of the term "target." While the Bank thus does not admit practicing monetary targeting, however, it does admit that the forecast incorporates the assessment of its own behavior during the current quarter and is meant to "provide the public with information about policy."⁸ In fact, the Bank of Japan

³ The corresponding rate of inflation in figure 1 is somewhat lower, because it is calculated as a rate of increase over the same quarter of the previous year.

⁴ Commercial banks were authorized to issue CDs for the first time in May 1979.

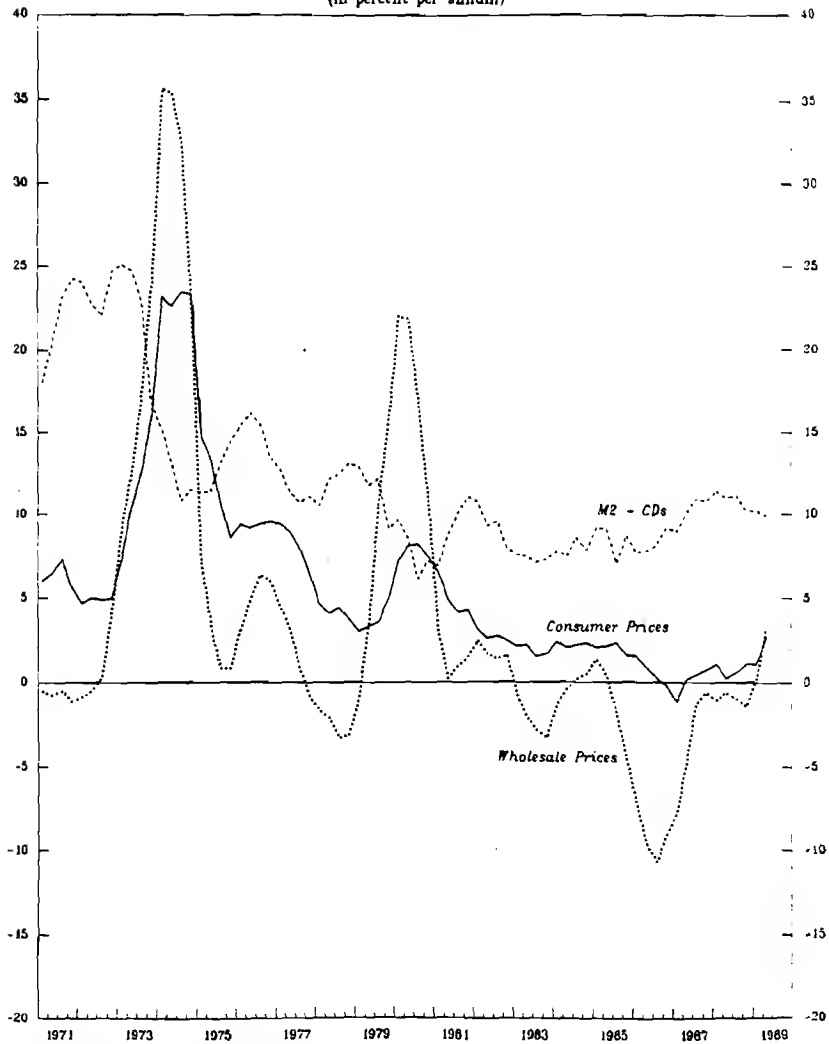
⁵ Shimamoto, Reichi. Monetary Control in Japan. In: Meek, P., ed. *Central Bank Views on Monetary Targeting*. New York, Federal Reserve Bank of New York, 1982. p. 80-85.

⁶ Ibid.

⁷ Suzuki, Yoshio. *Money, Finance, and Macroeconomic Performance in Japan*. New Haven and London, Yale University Press, 1986.

⁸ Ibid.

FIGURE 1
 Rates of Monetary Growth and Inflation in Japan,
 Q1 1971 to Q2 1989^{1/}
 (In percent per annum)



Source: IMF, International Financial Statistics.

^{1/} Growth rates over the same quarter of the previous year.

has generally produced rates of money growth fairly close to its forecasts (figure 2). If we take the approximate midpoints of the forecast ranges, we find that the Bank of Japan's forecast error for any given year never exceeded 0.7 percent and generally remained below 0.3 percent (the first column of table 1).

Table 1. OFFICIAL FORECAST ERRORS OF MONEY SUPPLY GROWTH, Q3 1978–Q2 1989

(Percent per annum)		
Year	Annual	Quarterly
1978/79.....	0.01	0.05
1980.....	-0.26	-0.99
1981.....	0.23	0.89
1982.....	-0.36	-1.35
1983.....	0.03	0.11
1984.....	-0.02	-0.07
1985.....	0.25	0.93
1986.....	0.03	0.10
1987.....	0.68	2.55
1988/89.....	-0.19	-0.68

Of course, annual data mask an important element of the forecast errors. Although the period of forecast at the time of each announcement covers four quarters, the actual rate of money supply growth during the first three quarters is already known. This means that only the forecast of money supply growth for the current quarter contains new information about the behavior or the forecasting ability of the central bank. As expected, we find that the Bank of Japan's quarterly forecast error for any given year was considerably (generally about four times) greater than the annual forecast error, often approaching or exceeding a full percentage point per year (the second column of table 1).

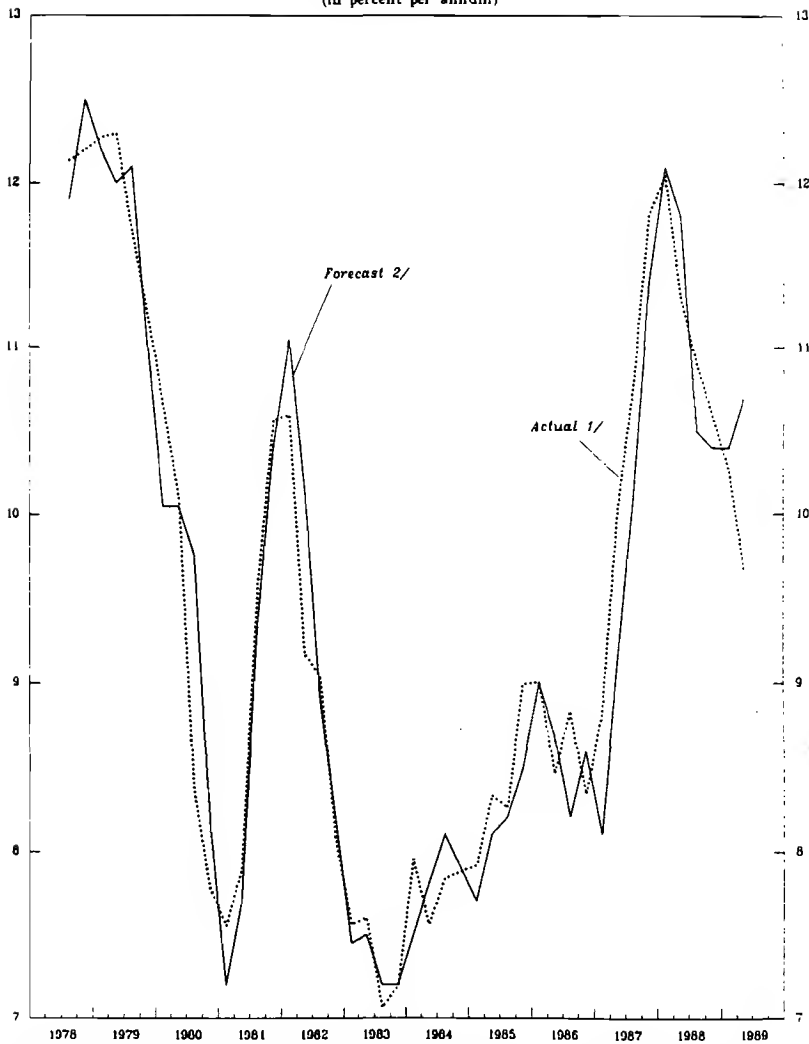
BANK OF JAPAN FORECASTS

One way to assess the nature of a Bank of Japan forecast is to compare it with a mechanical forecast based on a time-series model, such as a vector-autoregressive (VAR) model. For example, we can think of a simple 5-variable VAR model consisting of broad money, the monetary base, nominal GNP, the wholesale price index, and the call money rate.⁹ A mechanical forecast generated by such a VAR model is general enough to serve as a benchmark against which the Bank of Japan forecast might be evaluated.

The model was first estimated for the period from the first quarter of 1975 through the fourth quarter of 1983, and two types of forecasts were then calculated by sequentially updating its parameter estimates from the first quarter of 1984 through the first quarter of 1989. First, one-step forecasts are the forecasts calculated on the basis of model coefficients estimated through the period one quarter earlier. Second, two-step forecasts are the forecasts calculated on the basis of coefficients estimated through the period two quarters earlier. Because nominal GNP is the only variable for

⁹ The model is expressed in logarithm with seasonal dummy variables; the number of lags is set at four.

FIGURE 2
 Forecast and Actual Growth of Broad Money in Japan,
 Q3 1978 to Q2 1989^{1/}
 (In percent per annum)



Source: Bank of Japan, Economic Statistics Monthly

1/ The rate of growth of the average balance of M2 + CDs in each quarter over the balance in the same quarter of the previous year

2/ Approximate mid-points of the forecast ranges announced by the Bank of Japan at the beginning of each quarter

which the actual value for the previous quarter is unknown at the announcement of a Bank of Japan forecast, the best market forecast may well be somewhere between the one-step and the two-step forecasts.

Table 2 compares the Bank of Japan forecasts with the one-step and two-step VAR forecasts in terms of three criteria. We note that, as expected, the one-step forecasts outperformed the two-step forecasts in terms of all three criteria. As to the comparison between the Bank of Japan forecast and the one-step mechanical forecast, the former outperformed the latter in terms of both mean absolute errors and root mean squared errors. However, in terms of mean errors, the Bank of Japan forecasts were inferior to both the one-step and two-step mechanical forecasts. This probably reflects the conspicuous underprediction of money supply growth by the Bank of Japan particularly during 1987 (see figure 2 and table 1). Thus, it appears that the Bank of Japan forecasts were "closer" forecasts than the VAR forecasts, although they could be biased forecasts during some periods.

Table 2. PERFORMANCE OF MONEY SUPPLY FORECASTS, Q1 1984-Q1 1989*

	Mean Errors	Mean Absolute Errors	Root Mean Squared Errors
Bank of Japan forecast	2.51	3.03	3.78
VAR forecast (1-step)	-0.66	4.70	6.72
VAR forecast (2-step)	-1.19	8.11	10.40

* All values are multiplied by 10^3 .

The generally superior performance of Bank of Japan forecasts may in part reflect its informational superiority. In making money supply forecasts, the Bank of Japan processes all relevant pieces of information that are only internally available, such as the projected reserve positions and lending plans of commercial banks, planned outlays of government expenditures, and price forecasts based on its weekly nation-wide monitoring of wholesale prices. Moreover, the Bank has made no secret of the fact that it counts its own policy stance for the current quarter in making the forecast. Thus, we may conclude that the Bank of Japan uses public announcements of its money supply forecasts as a means of providing the public with a credible indication of the future stance of monetary policy without committing itself to any specific target of monetary growth.

MICRO-STRUCTURE OF MONETARY POLICY

We now turn our attention from the overall regime of monetary policy to the legal and institutional mechanism (or micro-structure) of monetary control by which the central bank attempts to achieve money supply goals.

RESERVE REQUIREMENT SYSTEM ¹⁰

As in any central banking system, the Bank of Japan derives its ability to control monetary aggregates from its ability to influence the supply of and demand for the monetary base, which consists of currency in circulation and the reserves of commercial banks held at the central bank. However, the Bank of Japan does not control the monetary base rigidly because it believes that the demand function for base money is unstable in the short run. In principle, the Bank of Japan remains ready to supply any amount of base money that is demanded in the short run. In the longer run, however, it controls the balance of base money on the demand side by influencing the lending behavior of commercial banks either through interest rate actions or window guidance (see the next section).

The "Law Concerning the Reserve Deposit Requirement System" of May 1957 mandates that each depository institution under the system maintain a certain average balance of reserves with the Bank of Japan during a given maintenance period (from the 16th day of each month through the 15th day of the next), determined by the product of the legal reserve requirement ratio and the average outstanding balance of deposits during the calendar month that ends at the midpoint of the reserve maintenance period.

To those familiar with the U.S. reserve requirement system, what is striking about the Japanese system is the extremely low reserve requirement ratios. In contrast to the U.S. system where the ratios are in the range of 3 percent for most types of deposits,¹¹ the ratios in Japan have generally been in the range of 0.2–1.0 percent for demand deposits and 0.1–0.35 percent for time deposits.¹² However, the difference is deceiving when we recognize that vault cash is not counted as reserves in the Japanese reserve accounting system. Once this adjustment is made, the ratio of total reserves held at the central bank to demand and time deposits in the banking sector becomes quite similar. In October 1989, for example, the ratio was almost identical for both countries at 1 percent of the relevant components of either M2 or M2 plus CDs.¹³

On a more substantive level, the truly distinguishing feature of the Japanese banking system lies in the implicit guarantee of the central bank that each depository institution satisfies its legal reserve requirement on the 15th day of each month. The Bank of Japan monitors the reserve position of each bank on a daily basis and carefully guides its behavior to this end; the Bank is ready to meet any shortfall with its direct lendings. As a result, Japanese banks hold *ex post* virtually no excess reserves: the average balance of excess reserves in the banking system during a typical month is

¹⁰ For a further discussion, see Suzuki, Yoshio, Akio Kuroda, and Hiromichi Shirakawa. Monetary Control Mechanism in Japan. *Bank of Japan Monetary and Economic Studies*, v. 6, November 1988, p. 1–27.

¹¹ In the past, the reserve requirement ratios were in the range of 10 percent on demand deposits.

¹² The ratios become higher for larger balances. The highest ratio for demand deposits is currently 2.5 percent.

¹³ All relevant data for this chapter are obtained from Bank of Japan. *Economic Statistics Monthly*, monthly issues; and, Board of Governors of the Federal Reserve System. *Federal Reserve Bulletin*, monthly issues.

no more than 0.1 percent of the total reserves held at the central bank.¹⁴

DISCOUNT WINDOW LENDINGS

The use of the discount window has been an integral part of the monetary control mechanism in Japan. Outstanding balances of discount lendings provide the central bank with a means of exerting control over the behavior of commercial banks. In order to ensure that a positive balance of discount window lendings is outstanding, the Bank of Japan sets the official discount rate below interbank interest rates.

A look at the time-series of the official discount rate and the interbank call money rate (analogous to the Federal funds rate in the United States) would reveal that the discount rate always remains below the call rate in a relatively stable relationship during periods of both monetary tightening and easing (figure 3a). In contrast, the Federal funds rate in the United States can fall below the discount rate particularly during periods of monetary easing (figure 3b).

The discount rate that is permanently lower than interbank interest rates provides commercial banks with an incentive to seek discount borrowing from the central bank. Given the excess demand for central bank lending, the central bank can exercise fairly tight control of the reserve positions of commercial banks through credit rationing at its discretion. It is typically the case that the banking sector as a whole is in a net debtor position to the central bank, with the balance of discount window lendings generally exceeding that of commercial bank reserves held at the central bank.¹⁵ Moreover, the biggest recipients of discount facilities are a dozen or so large money center banks (called city banks and long-term credit banks), which together account for about 90 percent of total central bank lendings in a typical month.

Although the nominal discount rate is set below the interbank interest rates, however, a potential discount window borrower may face a higher effective discount rate, which is calculated by counting the day on which the credit is extended as one full day (the "method of counting both ends"). For example, if a bank receives credit from the discount window at 4 percent for one day, the effective rate becomes roughly 8 percent. The "method of counting both ends" thus creates incentives for banks to smooth out discount window borrowing over a longer period by discouraging extremely short-term borrowing. This also ensures that discretionary changes in the discount rate spread to interbank interest rates.

RESERVE PROGRESS RATIO

In guiding the daily funding behavior of depository institutions, the Bank of Japan uses an accounting concept called the "reserve

¹⁴ In contrast, the average balance of excess reserves in the U.S. Federal Reserve System in a typical month ranges between 1 and 2 percent of the total reserves.

¹⁵ In Japan, this phenomenon is called "over-loan" (see the next section). However, the ratio of lendings to reserves is quite seasonal and can even fall below unity. In the Federal Reserve System, the balance of discount window lendings does not even cover the amount of excess reserves (let alone required reserves), with the ratio of lendings to reserves significantly less than 0.05.

FIGURE 3a

Japanese Discount and Call Money Rates

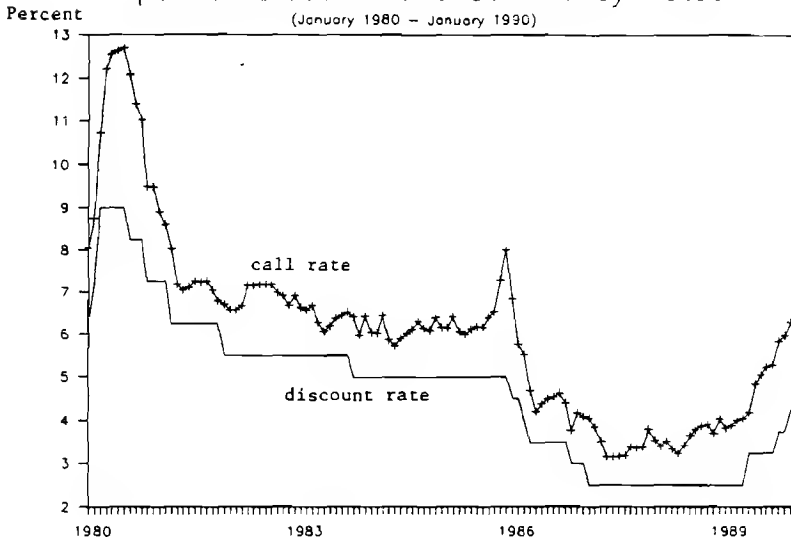
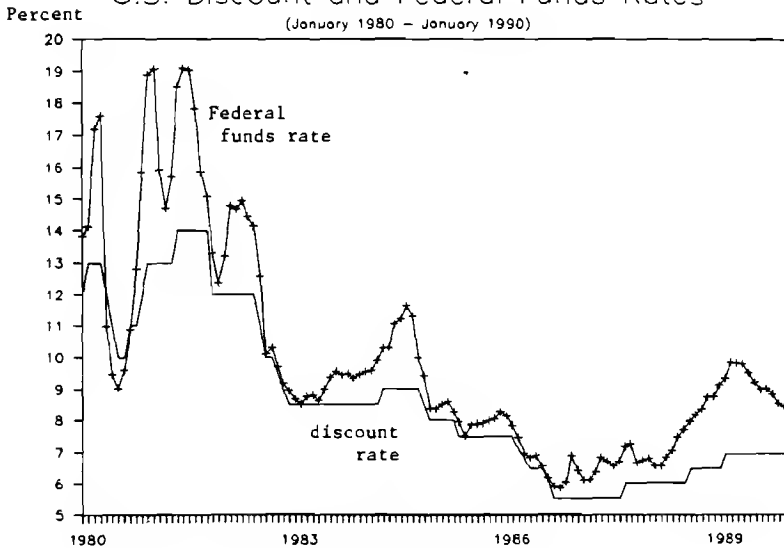


FIGURE 3b

U.S. Discount and Federal Funds Rates



Source: IMF, International Financial Statistics.

progress ratio," which serves a function similar to the concept of "non-borrowed reserves" in the U.S. banking system. The reserve progress ratio is defined as the proportion of actual reserves accumulated up to date in the aggregate balance of total required reserves for the reserve maintenance period.¹⁶ For example, the ratio of 0.5 is reached when a half of the aggregate required reserves for the maintenance period has been accumulated. Our earlier discussion suggests that the Bank of Japan insures that the reserve progress ratio is one (i.e., the required reserves are exactly met) on the last day of the maintenance period.

The degree of tightness in the day-to-day stance of monetary policy is measured relative to what the Bank of Japan calls the "standard path of reserve accumulation." The standard path refers to the daily pace of reserve accumulation in which the required reserves are maintained equally every day. In other words, the reserve progress ratio increases by $1/T$ per day (where T is the number of days in the maintenance period) under the standard path. If the Bank desires to tighten monetary conditions, it will reduce the reserve progress ratio of the banking system relative to the standard path by reducing direct lendings or selling securities in the market.

The reduced reserve progress ratio will in turn raise interbank interest rates through two channels. First, given the disincentive in the rate system for short-term discount borrowing, it will induce some individual banks to accelerate their borrowing in the call market. Second, it will provide a signal of the tighter stance of monetary policy, causing expectations of higher interest rates in the future. In this manner, the Bank of Japan can influence the behavior of short-term interest rates, even though it implicitly insures that each bank *ex post* satisfies the reserve requirement for each period.

OPERATING TOOLS OF MONETARY POLICY

The Bank of Japan employs several operating tools to influence the reserve positions of the banking system and hence market interest rates. Broadly speaking, there are two types of operating tools. The first concerns the medium-term means of expanding the monetary base. The second is the means of fine-tuning the short-run supply of base money.

PROVISION OF BASE MONEY

As a means of providing base money, direct lending plays a far greater role in Japan than in the United States. The Bank of Japan generally stands ready to extend whatever amount of direct lendings needed to meet the reserve requirement. The Bank, however, gives each bank guidelines on the amount of net new lendings in the form of window guidance, paying due respect to the voluntary lending plans of individual banks.¹⁷ While this system (of

¹⁶ Because the value of total required reserves will not be known until after the first day of the next calendar month, its projected value is used through the end of the first calendar month.

¹⁷ In addition, the Ministry of Finance can give "administrative guidance" to financial institutions regarding their lending activities.

window guidance supported by direct lendings) has remained essentially unchanged for the past 30 years, there has been some shift in emphasis toward a more market-based method of money supply control and base money creation.

In the 1960s, direct lendings were far more dominant than they are today, constituting a significant component of the assets of the central bank. In fact, the outstanding balance of direct lendings far exceeded the total reserves of the banking sector held at the central bank, with the ratio approaching as high as 20. This predominance of direct lendings, which is sometimes called "over-loan" in Japan, was in fact a rational means of expanding the monetary base when the outstanding balance of government bonds was extremely limited.

The situation began to change with the rapid expansion of the government bond market in the late 1970s. In the early part of the 1970s, the fiscal position of the central government began to deteriorate sharply because of the permanent slowdown in economic growth and the increase in public spending on social programs, prompting the government to begin issuing large amounts of bonds in 1975. As a result, the outstanding balance of government bonds, which was only ¥13 trillion in 1974, increased to ¥80 trillion in 1980 and further to over ¥170 trillion in 1989.¹⁸ The Bank of Japan has regularly been purchasing long-term government bonds from the market in recent years.

The increased purchases of government bonds is reflected in the corresponding shift in the source component of the monetary base. For example, the proportion of government bonds in the assets of the central bank increased from the range of 20-30 percent in the late 1960s to 56 percent in 1989; the proportion of direct lendings fell from over 50 percent to the range of 10 percent. The ratio of direct lendings to the total reserves of the banking sector, which was as high as 20 in the 1960s, fell sharply in the early 1970s and is now anywhere between 0.5 and 3. Direct lendings probably have served only an insignificant *economic* function in recent years, although they remain important as a means of preserving central bank control over the banking system.

THE INTERBANK MARKET

Until the late 1970s, the central bank relied exclusively on market operations in the interbank market (consisting of the call and bill-discount markets) as a means of fine-tuning the short-run supply of base money. The interbank market in Japan has two important characteristics. First, the Bank of Japan maintains close surveillance over the market because, as a matter of practice, almost all transactions are made through the mediation of six authorized short-term money market brokers, who are subject to the supervision of the central bank. In the past, the money brokers even "posted" (fixed) interbank interest rates in consultation with the Bank of Japan on a daily basis, and all transactions had to be secured on collateral. Although some still maintain that the Bank of Japan retains considerable influence on the way interbank inter-

¹⁸ The figures include short-term government financing bills.

est rates are set, greater flexibility has been introduced into the operation of the market in recent years.

Second, the distribution of lenders and borrowers in the interbank market is highly uneven. The larger money center banks (comprising city and long-term credit banks) and foreign banks are perennial borrowers, while trust banks and the smaller depository institutions are perennial lenders. At the end of 1989, the share of the city and long-term credit banks (16 banks) in the total outstanding balance of liabilities was 66.9 percent and the share of foreign banks was 6.4 percent.¹⁹

The exclusive reliance on the interbank market for market operations worked reasonably well when the structure of interest rates was tightly regulated elsewhere in the economy. However, two important developments in the mid-1970s began to weaken the effectiveness of interbank operations. First, the emergence of an active secondary market in government bonds (as described above) began to provide a free market alternative to the structure of regulated interest rates. Second, the slowdown in economic growth reduced corporate investment demand, and prompted major corporations to invest their surplus cash in an unofficial bond repurchase (*Gensaki*) market, where they could earn market rates of return. These developments resulted in an outflow of some funds from the regulated bank deposit market and diminished the relative depth of the interbank market.

Liberalization of the financial market was a response of the monetary authorities to the increased likelihood of disintermediation. The notable measures they took in subsequent years have included the introduction of negotiable certificates of deposit (CDs) in May 1979 and money market certificates (MMCs) in May 1985, and liberalization of deposit rates on large-denomination time deposits in October 1985. At the same time, the authorities allowed other market instruments to be introduced outside the bank deposit market, such as Treasury bills (TBs) in February 1986 and commercial paper (CP) in November 1987. A majority of important interest rates in the Japanese financial market are now determined by market forces.²⁰

In response to and concurrent with these developments, the Bank of Japan began to liberalize the operation of the interbank market. The Bank felt that, to the extent that operations in the interbank market remained the principal operating tool, it was important to maintain the depth of the market and to facilitate arbitrage with other markets.²¹ Beginning in June 1978, the Bank gradually implemented such measures as (1) introduction of flexible pricing by abolishing the "posting" of interest rates on an increasing number of instruments; (2) diversification of instruments,

¹⁹ The shares of foreign banks were 14.7 percent in 1983 and 13.1 percent in 1986. Foreign banks typically borrow only in the call market, where instruments traded can be unsecured; their shares in the call market alone were 22.5 percent in 1983, 27.8 percent in 1986, and 10.2 percent in 1989.

²⁰ For a further discussion on financial market liberalization in Japan, see Takagi, Shinji. Recent Developments in Japan's Bond and Money Markets. *Journal of the Japanese and International Economies*, v. 2, March 1988, p. 63-91.

²¹ For a detailed discussion on this point, see Takagi, Shinji. Financial Liberalization and the 'Bills-Only' Doctrine. A Causality Test of Daily Japanese Data, 1978-85. *Economic Studies Quarterly*, v. 39, June 1988, p. 149-159.

including unsecured instruments; and (3) liberalization of restrictions placed on different types of activities (such as arbitrage trading and resale before maturity) or certain types of institutions (including securities companies).

NEW OPERATING PROCEDURES

Along with the expansion of other money markets, the Bank of Japan has been diversifying its operating tools in order to influence economy-wide interest rates with greater ease. The Bank began operations in CDs in March 1986, in CP in May 1989, and in TBs in November 1989. It is the intention of the Bank of Japan to make operations in TBs (the liabilities of the central government) the principal tool of monetary policy in the future. Although the Bank of Japan obtained the approval of the reluctant Ministry of Finance to proceed with TB operations,²² the limited balance of outstanding TBs currently limits their effectiveness and flexibility.²³ For this reason, interbank operations are likely to remain the principal tool of monetary policy for some time.

The Bank of Japan implemented a major overhaul of the interbank market in November 1988 in order to maintain the effectiveness of interbank market operations in two areas. First, the size of the interbank market had continued to shrink relative to the other major markets, as lenders began to invest more funds in the CD market and corporate borrowers began to issue more CP. Second, it was felt that the traditional reliance on operations in the longer end of the market (bills with maturities of one to three months) was giving unnecessary impact on the expectations of market participants about the stance of monetary policy; the result was often that interest rates reacted sharply to each interbank operation and that interbank interest rates deviated from other interest rates of similar maturities. The Bank of Japan thus shortened the maturity of private bills traded in the bill-discount market, and introduced operations in bills with maturities of one to three weeks as the principal operating tool.

The Bank of Japan has continued to liberalize the operation of the interbank market in recent months. For example, the Bank raised the maximum maturity of both unsecured instruments in the call market and private bills in the bill-discount market to one year (January 1989), lowered the minimum denomination of interest rate quotations from 1/16 to 1/32 percent (January 1989), and reduced the fixed commission rate of money market brokers on unsecured transactions from 1/16 to 1/25 percent (April 1989). In December 1989, the Bank clarified its position that foreign banks were free to raise funds in the interbank market without the mediation of money market brokers. Further reforms along these lines are likely in coming years.

²² The Ministry of Finance was initially apprehensive because of the fear that a large TB market might put upward pressure on the funding cost of the government. However, the Ministry is now more committed to expanding the size of the TB market because it recognizes that provision of safe short-term yen-denominated assets is necessary to make the yen a more attractive international currency.

²³ The balance of outstanding TBs at the end of 1989 was less than Y6 trillion, compared with over Y45 trillion in the interbank market and over Y20 trillion in the CD market.

CONCLUSIONS

In the recent conduct of monetary policy, the Japanese authorities have pursued price stability as the primary policy objective by paying close attention to the maintenance of stable growth of broad monetary aggregates averaged over the medium term. The policy of announcing its forecast monetary growth has allowed the Bank of Japan to provide the public with a credible indication of the medium-term stance of monetary policy without incurring the possibly negative consequences of committing to a monetary target that is rigid and legally binding. It is likely that, as long as the current regime is in place, the Japanese monetary authorities will continue to pursue a prudent monetary policy directed at price stability. The macroeconomic aspect of Japanese monetary policy thus does not seem to be of particular concern to the United States.

Of more direct concern may be the microeconomic operation of monetary policy, in which direct lending and interbank market operations constitute the principal operating tools of the central bank. The current system under which the large money center banks receive almost all of their low cost discount lendings from the Bank of Japan may be criticized as giving unfair advantage to the Japanese banks which compete in the international market. Likewise, the operation of the interbank market under which almost all transactions are made through the mediation of money market brokers may be criticized, particularly in the light of foreign banks which rely on the interbank market for much of their funding. Although some important changes have already taken place in these areas,²⁴ further friction may arise in the future as long as discretionary actions of the central bank constitute a significant component of the monetary control mechanism.

²⁴ In December 1989, for example, the Bank of Japan began direct lendings to foreign banks, and clarified its position that foreign banks were free to effect transactions in the interbank market without the mediation of money market brokers.

OUTLINE OF PUBLIC FINANCE IN JAPAN

By Shinji Takagi ¹

CONTENTS

	Page
Summary	27
Introduction	28
The Budgetary Process	28
The Components of the Budgetary System	29
The Central Government	29
Local Governments	30
Public Enterprises	31
Fiscal Investment and Loan Program (FILP)	32
Characteristics of Public Finance	33
Size of the Public Sector	33
Government Investment	34
The Financial Position	34
Fiscal Reconstruction	36
Conclusions	37

TABLES

1. Special Accounts of the National Budget (FY 1989)	39
2. Government-Affiliated Corporations in Japan	39
3. Major Public Corporations in Japan	40

FIGURES

1. Size of Government Expenditures	41
2. Central and Local Government Finance	42
3. Sources of Fixed Capital Formation	43
4. Public Sector Fiscal Position	44
5. Government Debt and Debt Service	45

SUMMARY

The system of public finance in Japan is characterized by a small share for government consumption, a large share for government investment, and extensive intragovernmental transfers. In this system, the central government authorities occupy a privileged position. They control both local finance (through tax transfers and subsidies) and the allocation of private investment funds (through public financial institutions).

The lack of fiscal and regulatory independence on the part of local governments has virtually eliminated regional competition and the freedom of local bodies to set their own economic policies. There is now an increasing awareness in Japan that the relation-

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ship between the central and local governments should be substantially modified to give more fiscal (as well as regulatory) authority to local governments.

The extensive involvement of the government sector in financial intermediation is a potential area of future bilateral friction between Japan and the United States. In an advanced industrial economy, no strong case seems to exist for maintaining an extensive system of public depository and lending institutions. Subsidized loans from government financial institutions not only can be questionable in terms of both equity and efficiency, but they also may be perpetuating inefficient enterprises and creating additional impediments to the distribution of foreign products and entry of foreign firms.

INTRODUCTION

This chapter presents an outline of public finance in Japan. In particular, it summarizes the budgetary process and the components of the budgetary system, discusses the salient characteristics of public finance, and offers some possible policy implications for the United States. Emphasis will be placed on the overall framework of public finance within which public policy takes place. Consequently, little will be said about individual budgetary items either on the revenue or on the expenditure side.

THE BUDGETARY PROCESS

The public sector in Japan consists of the central government (including the legislative, judicial and executive branches), local (prefectural and municipal) governments and public enterprises. Within the central government, executive power is vested in the Cabinet, which consists of the Prime Minister and other Ministers of State currently in charge of 12 ministries and 8 agencies. In addition, several commissions (e.g., the Fair Trade Commission) and agencies (e.g., the Imperial Household Agency) are attached to the Prime Minister's Office; other agencies are attached to respective ministries (e.g., the National Tax Administration Agency under the Ministry of Finance). Each public sector entity annually prepares a budget for a particular fiscal year (F'Y), which begins on April 1 and ends on March 31 of the following calendar year.

In the national budgetary process, the Ministry of Finance plays the central role. Its Budget Bureau is directly responsible for drafting a government budget, which is usually completed in late December. The draft budget is prepared within the framework of the guidelines set by the Cabinet at the beginning of the drafting process (in the summer), and reflects projected revenues, the budgetary requests of all government ministries and agencies, and the views of the policy commission of the ruling Liberal Democratic Party (LDP). With cabinet approval, the government draft budget is submitted first to the House of Representatives and then to the House of Councilors for approval. When there are irreconcilable differences between the decisions of the two Houses, or when the House of Councilors fails to reach a decision within 30 days, the decision of the House of Representatives automatically becomes the decision of the Diet.

When a budget is unlikely to be approved by April 1 (as was recently the case for FY 1990), the central government submits a provisional budget to the Diet in order to continue to provide essential government services. The provisional budget is subsumed in the full budget, when the latter becomes effective. As in other countries, a supplementary budget is generally proposed during the course of a fiscal year in order to make adjustments for unexpected revenue developments or modifications in national policy. In Japan, a supplementary budget has often been used as a flexible tool of fiscal policy, e.g., by providing fiscal stimulus through additional public works expenditures.

As to local finance, 47 prefectural governments and over 3000 municipal (city, town and village) governments submit their annual budgets to their respective legislative bodies for approval. The Local Autonomy Law guarantees the principle of local autonomy, and the chief executive (governor or mayor) and members of the legislature of each local jurisdiction are popularly elected. However, in conducting both administrative and financial affairs, they are in reality subject to considerable control of the national authorities. Moreover, within the framework of local finance, municipal governments are subject to the additional control of prefectural governments.² In terms of total expenditures, the size of the 47 prefectures has been roughly similar to the size of all the municipalities combined.

Under the Local Public Finance Program, the Ministry of Home Affairs prepares an official estimate of the projected revenues and expenditures in the ordinary account budgets of all local governments for submission to the Diet in February. The national authorities use this program to set guidelines for local authorities, to determine the appropriate level of intragovernmental transfers, and to coordinate national and local policies. The national government also prepares an estimate of itemized local government bond issues for the coming fiscal year under the Local Public Bond Program. Through these programs at the national level, local finance is incorporated into national fiscal policy.

THE COMPONENTS OF THE BUDGETARY SYSTEM

THE CENTRAL GOVERNMENT

The administrative budget of the central government includes a general account and 38 special accounts. The general account is the core of the national budget and is used to control practically all of the essential revenues and expenditures of the national government. The government also uses the general account to exercise control over the special accounts as well as the budgets of local governments. The national budget usually refers to the general account budget.

A special account is established when the government (1) carries out a particular business activity (e.g., Postal Service)³ or public

² However, considerable independence from prefectural control is granted to 11 "designated" metropolitan municipalities (i.e., nine major prefectural capitals, Kitakyushu and Kawasaki).

³ The activities of the five special accounts (the Mint Bureau, Printing Bureau, Postal Service, National Forest Service, and Alcohol Monopoly) are considered as public enterprises in the system of national income accounts.

works project (e.g., Airport Improvement), (2) administers a particular fund (e.g., National Pensions), or (3) disburses proceeds of particular taxes for a designated purpose (e.g., Local Allocation Tax). For convenience, these special accounts are usually classified into the five functional categories of national undertakings: insurance, management, public investment and loans, and consolidation funds (Table 1).

A special account uses a specific revenue to meet a specific expenditure. For instance, proceeds from sales of government rice are used to purchase rice from farmers through the Foodstuff Control Special Account; tuition receipts are used to operate national universities through the National Schools Special Account. When, as is often the case, specific revenues do not meet the requirement of specific expenditures, transfers or subsidies are made from the general account to cover the shortfall. Conversely, operational surpluses in a special account may be transferred to the general account.

LOCAL GOVERNMENTS

The system of local government finance closely resembles that of the central government. The "ordinary" budget consists of the general account and various special accounts. In most discussions of public finance in Japan, it is the ordinary budget (consisting of both the general account and special accounts) that is contrasted to the general account budget of the national government. In addition, the administrative budgets of local governments include several "public service" accounts. The most important of these are the accounts for local public corporations, comprising such profit-based business activities as water supply, transportation, and public hospitals (also see public enterprises below).

The central government exercises control over the fiscal operations of local governments through two channels. First, it maintains considerable financial control by limiting the taxing authority of local governments. Not only does the national government prescribe the types of taxes that can be levied by local governments, but it also sets the rates and amounts of local taxes considerably below the level of required local expenditures.⁴ In fact, much of local revenues are raised through taxes collected at the national level, with a certain designated percentage of them being disbursed to local governments through the Local Allocation Tax and Local Transfer Tax Special Account.

Although the national government normally does not have the flexibility of changing the total amount of tax monies disbursed to local governments, it has some discretion over how the tax is allocated among various jurisdictions. In principle, the central government has used its power as a mechanism of regional income redistribution by allocating proportionately less to urban areas with a greater concentration of industry and population relative to rural areas. Reflecting the strong independent revenue base, for example, the metropolitan prefectures of Tokyo and Osaka have received little or no local allocation taxes in recent years.

⁴ Even the amount of debt issues and borrowing is subject to the approval of the Minister of Home Affairs (who acts in consultation with the Minister of Finance).

Second, the central government exercises legal and regulatory control over the expenditures of local governments. The central government not only requires performance of certain "delegated" public services at the local level but also sets guidelines and standards for practically all other public services. The guiding principle in central government directives has been regional uniformity in tax burden and public services.⁵ In order to enforce control, the central government provides national disbursements for delegated services on a cost sharing basis, and extends grants and subsidies for other services on the basis of compliance with national directives. It is said that every agency of the national government has some type of such "incentive subsidy" program.

PUBLIC ENTERPRISES

There are over 8000 public enterprises of various types in Japan, of which about 100 are established at the national level.⁶ Many of the local enterprises are closely related to the public services of local governments such as water supply, sewerage, tourism and hospitals. Local public enterprises constitute part of the public service account budgets of local governments. They receive not only direct local appropriations but also subsidies from the national government and financing from the Japan Finance Corporation for Municipal Enterprises (see below).

Among the national public enterprises, government-affiliated corporations and public corporations are the most important. First, government-affiliated corporations are established by special law and fully capitalized by the central government (table 2). Currently, there are 11 such corporations, of which nine are finance corporations (*koko*) and two are special banks (*ginko*). The government is required to submit the annual budgets of these corporations to the Diet for approval, along with the general account and special accounts budgets.

Second, public corporations are either fully or partially capitalized by the central government, and perform public-interest functions prescribed by law. The larger corporations (currently 14) are called "public units" (*kodan* or *eidan*), and their primary function is to execute and manage large-scale infrastructural projects often related to transportation and land development (table 3). The smaller ones (currently 21) are called "enterprise units" (*jigyodan*), which can be considered as administrative organs of the central government ministries.⁷ As such, enterprise units are less independent than public units and receive direct appropriations from the general account budget (table 3).⁸ The budgets of public corpo-

⁵ For a more detailed treatment of the financial relations between the national and local governments, see Shibata, Tokue, ed. *Public Finance in Japan*. Tokyo, University of Tokyo Press, 1986. Chapter 10.

⁶ For a detailed treatment of public enterprises in Japan, see Tsuji, Kiyoshi, ed. *Public Administration in Japan*. Tokyo, University of Tokyo Press, 1984. Chapter 4; and, Johnson, Chalmers. *Japan's Public Policy Companies*. Washington, American Enterprise Institute for Public Policy Research, 1978.

⁷ In fact, almost all of them are included in the general government sector in the system of national income accounts.

⁸ Table 2 lists only those enterprise units which received FILP disbursements in FY 1989. Other important units include: the Livestock Industry Promotion Corporation, the National Space Development Agency, and the Japan International Cooperation Agency.

rations are subject only to the approval of their supervising ministries.

FISCAL INVESTMENT AND LOAN PROGRAM (FILP)

The national government is required to submit for Diet approval a comprehensive program of (mostly off-budget) disbursements of all government-managed funds for investment purposes under the Fiscal Investment and Loan Program (FILP). This program is organized by the central government to channel private funds into capital investment expenditures in accordance with national priorities. The funding of FILP comes from the private funds entrusted to the Trust Fund Bureau of the Ministry of Finance in the form of deposits in the Postal Savings System (about 25 percent in FY 1989),⁹ contributions to the national pension schemes (12 percent), and loan repayments and interest receipts (40 percent), as well as from the Postal Life Insurance and Postal Annuity programs (17 percent) and government-guaranteed bonds (6 percent).

Most of the FILP funds are allocated to 11 government-affiliated corporations (40 percent in FY 1989) and 11 public corporations and over 30 other special public enterprises (32 percent) for investment expenditures. It is important to note that not all proceeds go to public works expenditures. Private individuals, for example, receive subsidized loans from the Housing Loan Corporation for the construction of residential buildings. Similarly, private entrepreneurs receive subsidized loans from the Small Business Finance Corporation. Some major corporations can be recipients of FILP loans, as in the lendings of the Japan Development Bank and the Export-Import Bank of Japan for purchases of imported aircraft by major airlines.

Some FILP operations are also recorded in the national budget and the budgets of local governments, so that the net value of investment outlays undertaken with government initiatives (either through the regular budgets or FILP) is smaller than the gross sum of total general government investment outlays and total FILP disbursements. First, some of FILP funds are used to purchase central government bonds (about 7 percent in FY 1989) and local government bonds (13 percent), thus constituting part of general government revenues. Second, because the lending rates of subsidized FILP loans are often set below the rates of borrowing from the Trust Fund Bureau,¹⁰ transfers from the general account are made to meet the shortfall. Third, some FILP funds (about 11 percent) are used through nine central government special accounts for infrastructural investment, to which both FILP disbursements and direct general account appropriations are supplied (see table 1).

⁹ The government-owned Postal Savings System is the largest depository institution in the world, claiming about a third of all personal bank deposits in Japan.

¹⁰ Minimum rates of return are specified on Trust Fund Bureau lendings for the protection of depositors in the Postal Savings System and contributors to the national pension schemes.

CHARACTERISTICS OF PUBLIC FINANCE

SIZE OF THE PUBLIC SECTOR

In terms of consumption, the relative size of the public sector in Japan is small by the standards of most industrial countries. According to internationally comparable statistics of the Organization for Economic Cooperation and Development (OECD), the share of government current expenditures on goods and services in 1988 was only 9.2 percent for Japan, compared with around 20 percent for the other Group of Five (G-5) countries, including the United States.¹¹ The small share of government consumption, reflecting the smaller relative size of government employment and defense spending, is an important characteristic of Japanese public finance.

The small share of government consumption in Japan does not mean a correspondingly small tax burden of its people. According to the same OECD statistics, Japan's share of government receipts (over 30 percent of GNP) was almost the same as that of the United States, although it was considerably smaller than those of the other G-5 countries which ranged between 40 and 50 percent. The difference between Japan and the United States lies in the greater GNP share of government investment in Japan (6-7 percent compared with around 2 percent). The larger share of government receipts in the other G-5 countries reflects the greater involvement of the European governments in transfer payments.¹²

As to the components of the public sector, the share of the general account budget of the national government increased from 12 percent of GNP in FY 1974 to the peak of over 18 percent in FY 1982; the share has been in the 15-16 percent range in the past few years (figure 1). The combined share of the general account and the ordinary accounts of local governments similarly increased from 19 percent in FY 1974 to about 25 percent currently, after reaching the peak of over 27 percent in FY 1982. Finally, the combined (net) share of the general and special accounts of the central government, the ordinary accounts of local governments, and the budgets of 11 government-affiliated corporations is currently about 40 percent of GNP.¹³

Extensive intragovernmental transactions are an important feature of public finance in Japan, as suggested by the difference between "gross" and "net" government expenditures in figure 1. At the central government level, about half of gross government expenditures represent intra-account transactions. As to the financial relationship between the central and local governments, transfers from the central government (local allocation taxes, subsidies and grants, and local transfer taxes) have accounted for almost 40 percent of total local government revenues in recent years. After ad-

¹¹ International data for this chapter are from Organization for Economic Cooperation and Development. *OECD Economic Survey: Japan*. Paris, OECD, 1989. (Hereinafter referred to as OECD, *Japan Economic Survey*.); and, International Monetary Fund. *International Financial Statistics*, monthly issues.

¹² For example, the share of social security benefits in national income in 1986 was 14.6 percent for Japan, 17.5 for the United States, 25.9 for the United Kingdom, 30.9 for Germany, and 36.9 for France. (From OECD, *Japan Economic Survey*, p. 129.)

¹³ Domestic budgetary data for this chapter come from Japan. Ministry of Finance. *Zaisei Kinyu Tokei Geppo* (Monthly Fiscal and Monetary Statistics), monthly issues; and, Japan. Ministry of Finance. *The Budget in Brief*. Tokyo, 1989.

justing for double counting, we find that, while about 60 percent of *effective* revenues are collected at the national level, about 60 percent of *effective* expenditures are made at the local level in terms of the consolidated national general account budget and the local ordinary budgets (figure 2).

GOVERNMENT INVESTMENT

In terms of investment, the share of the government sector in GNP began to decline from the range of 10 percent in the late 1970s to the range of 6-7 percent currently (figure 3). However, the current share still represents a greater involvement of the government in fixed capital formation in Japan than in the other G-5 countries (2-3 percent). The share of public investment is now about a fourth of total fixed investment.

While the share of public investment in total investment is considerable, it still understates the true influence of the government sector on the economy's aggregate investment. The size of government-directed FILP has been on a rising trend, having increased from about 5 percent of GNP in the early 1970s to the range of 7-8 percent in recent years. As discussed earlier, a substantial portion of FILP outlays are not included in public investment. For FY 1989, the size of FILP is projected to increase to 8.3 percent of GNP, making the gross size of public and FILP outlays approach 50 percent of total fixed investment outlays or 15 percent of GNP.

The importance of FILP goes beyond the actual amount of funds expended through the program, because FILP funds are generally provided in co-financing arrangements with private financial institutions. In risky projects, FILP funds can serve as a seal of implicit government guarantee and become a catalyst for additional private sector lendings that would not be available otherwise. Although FILP was used to promote "target" or "strategic" industries in the 1960s, its emphasis has shifted towards housing (28 percent of total outlays in FY 1989) and environment (17 percent). Considerable sums go to small businesses (16 percent), transportation (10 percent) and regional development (9 percent). The share of industry and technology, which was as high as 16 percent in FY 1965, has been only 3 percent since the early 1970s.

THE FINANCIAL POSITION

According to the flow of funds account, the financial positions of both the central and local governments turned to a deficit in 1975 and remained in deficit until 1987 (figure 4).¹⁴ The cause of the financial deficits of the general government can be traced to the two important developments which took place in the early 1970s. First, the annual rate of GNP growth, which averaged over 10 percent during the 1960s and the early 1970s, turned negative in 1974 and has since remained in the range of 3-5 percent, causing a corresponding fall in the rate of government revenue growth. Second, a shift in fiscal priorities in FY 1973 raised the level and rate of

¹⁴ Bank of Japan. *Economic Statistics Monthly*, monthly issues.

growth of social expenditures.¹⁵ The share of social expenditures in the general account budget, for example, rose from 14 percent in FY 1970 to the current level of 18–19 percent by FY 1975.

At its peak in 1978, the deficit of the general government reached 9 percent of GNP, of which over 5 percent was accounted for by the central government. The magnitude of the general government deficit, however, steadily declined from that time on, and the financial position of the general government (as well as central and local governments individually) recorded a small surplus in 1988 (figure 4). This means that the stance of fiscal policy was generally contractionary during recent years, corresponding to the withdrawal of fiscal stimulus (see fiscal reconstruction below).

It should be noted, however, that the definition of the central government in the flow of funds account (as well as in the national income accounts) includes the Social Security Fund, which consists of government-sponsored funds in four central government special accounts (such as the Welfare Insurance and the National Pensions), mutual-aid and health insurance associations, and such funds as Employee Pension Funds.¹⁶ Because the population has been relatively young and the maturity of pensions has been low in Japan,¹⁷ the Social Security Fund has shown a large surplus in past years, offsetting a similarly large deficit in the general account. For example, the Social Security Fund showed a *surplus* amounting to 2.9 percent of GNP in FY 1986, in contrast to the *deficit* of the general account amounting to 3.1 percent. It has been the official position of the Japanese authorities that, to the extent that the financial surplus of the Social Security Fund simply represents the future financial obligations of the central government, the financial position of the general account budget should be the more accurate indicator of the fiscal position of the central government. The financial position of the Social Security Fund is expected to deteriorate sharply in coming years, along with the rapid aging of the population.

In terms of the general account budget, the deficit of the central government deteriorated from 1.3 percent of GNP in FY 1975 to 4.3 percent in FY 1976, and reached a peak of 6.8 percent in FY 1979. From FY 1975 to FY 1979, the outstanding balance of long-term government bonds correspondingly increased from 12 percent of GNP to 30 percent. As a result of the government's determined effort at fiscal reconstruction (see below), however, the deficit of the general account budget was substantially reduced over the past several years; the projected deficit for FY 1989 was 1.8 percent of GNP. The balance of outstanding government bonds has now been

¹⁵ For example, the level of pension benefits began to be indexed and was raised from 20 to 43 percent of average pay; and free medical care was introduced for the aged. In Japan, FY 1973 is called the first year of the "welfare era."

¹⁶ The Employee Pension Insurance covers about 26 million people in the private sector. In addition, there are separate pension schemes for 6 million public sector workers and the National Pension scheme for another 26 million people, who are either self-employed or workers for small enterprises.

¹⁷ In 1985/86, the share of the elderly in total population was 10.6 percent for Japan, 11.7 for the United States, 13.0 for France, 14.7 for West Germany, and 15.1 for the United Kingdom; the ratio of pensioners to contributors was 12.1 percent for Japan, 18.5 for the United States, 23.5 for the United Kingdom, 32.4 for West Germany, and 40.4 for France.

stabilized at around 50 percent of GNP, a level somewhat higher than that in the United States.

FISCAL RECONSTRUCTION

Although the Fiscal Law of 1947 allows the government to issue bonds only for fixed investment purposes ("construction" bonds), the revenue and expenditure developments described above made it difficult to comply with this provision in every year since FY 1975, when general revenue bonds ("special" bonds) were issued under special Diet authorization for the first time.¹⁸ That is to say, the amount of central government deficits exceeded the amount of central government fixed investment expenditures in the general account. When the deterioration of the general account reached its peak (with a deficit of almost 40 percent of total expenditures) in FY 1979, the share of special bonds amounted to over 20 percent of total revenues on the basis of the initial budget (figure 5).

Given the large amount of obligatory transfers to local governments, the increasing share of debt service payments in the general account began to place a severe limitation on the flexibility with which the central government could manage fiscal policy (figure 5). For this reason, the government initially proposed the introduction of a general consumption tax in 1977 as a way of raising revenue commensurate with the increased need for social expenditures. This, however, resulted in a major setback for the LDP in the general election of 1979. The plan of the government was thus switched to that of rationalizing government expenditures.

The process of "fiscal reconstruction" proceeded in two complementary ways. First, beginning in FY 1980, the government made it a practice to determine the size of bond issue reduction before making other budgetary decisions. To aid this process, the government has prepared a "Medium-Term Fiscal Projection" of tentative future revenues and expenditures in the general account in every year since 1981. The initial Medium-Term Fiscal Projection, issued in January 1981 for the period of FY 1980-84, envisaged that special bond issues would be eliminated by FY 1984. In August 1983, however, the government extended the target year to FY 1990.

Second, in FY 1981 the government began to impose a spending freeze or reduction on all current expenditures¹⁹ as a way of reducing the rate of growth of general expenditures, defined as total expenditures minus the obligatory expenditures of debt service and local transfers; it also has attempted to reduce subsidy payments to local governments. In terms of the initial budget, the amount of general expenditures fell for five consecutive years between FY 1983 and FY 1987, after increasing by 4.3 percent in FY 1981 and by 1.8 percent in FY 1982. In FY 1983, the central government even reduced the amount of local allocation taxes by over 20 percent. From FY 1988, however, the government has allowed general expenditures to increase slightly (by 1.2 percent in FY 1988 and 3.3 percent in FY 1989).

¹⁸ A small amount of such "special" bonds were issued in FY 1965 in the supplementary budget.

¹⁹ Such items as defense and foreign aid were exempted from these austerity measures.

These measures have largely helped to moderate the growth of total general account expenditures in the past several years. For the first year of the fiscal reconstruction plan (FY 1981), the total size of general account expenditures increased at 10 percent from the budget of the previous fiscal year, despite the growth of debt service and local transfers amounting to 25.3 and 23.5 percent, respectively. In subsequent years, general account expenditures grew at the rate of 0-5 percent, against the background of more moderate growth of debt service and local transfers. Although the central government is still incurring increasing liabilities in some special accounts as well as in construction bonds, it succeeded in eliminating issues of special bonds in the general account of the FY 1990 budget, as envisioned in 1983.

CONCLUSIONS

The system of public finance in Japan is characterized by a small share of government consumption, a large share of government investment, extensive intragovernmental transfers, and significant government control of private sector funds. In this system, the central government authorities occupy a privileged position. In fact, the public finance system serves both as their "carrot and stick" to control the administrative and fiscal affairs of local governments and as the mechanism of financial intermediation to influence the allocation of private funds. There is little doubt that a large part of the concentration of power in Tokyo is attributable to this pivotal role of the central government in the public finance system.

The lack of fiscal and regulatory independence on the part of local governments has prevented regional competition and virtually eliminated the freedom of each local body to set its own economic policies. There is now an increasing awareness in Japan that the relationship between the central and local governments should be substantially modified to give more fiscal (as well as regulatory) authority to local governments, although there is concern that weakening central government control may have the undesirable effect of increasing the income disparity between metropolitan and rural governments. To the extent that greater local autonomy is desirable, it is ironic that the U.S. Administration's effort to remove "structural impediments" is working to strengthen—rather than weaken—the concentration of power in the central government in Japan.

The operation of FILP can conceivably become another area of bilateral disputes between Japan and the United States. It may be true that government directives played a useful role in the allocation of private resources during the early phases of Japan's economic development. In an advanced industrial economy, however, no strong case seems to exist for maintaining an extensive system of public financial institutions. For example, what is the rationale for the Postal Savings System, when there are dozens of internationally competitive, world-class depository institutions that are capable of managing private funds? What is the rationale for the Japan Development Bank, when Japanese corporations are among the largest in the world and are capable of raising their own funds in a competitive world capital market?

The role of government institutions in financial intermediation (through FILP) can also be questioned on the basis of equity and efficiency. For example, one can argue that subsidized loans from the Housing Loan Corporation are inequitable by transferring income from those who cannot afford to purchase houses to those who can; they may also be harmful to national goals by raising housing and land prices by increasing demand for real estate. Likewise, subsidized loans from the Small Business Finance Corporation may be perpetuating inefficient enterprises and creating additional impediments to the distribution of foreign products and entry of foreign firms. As part of the on-going financial market liberalization process, the reform of public financial institutions should be considered, including their possible abolishment or privatization.

Finally, as to the stance of fiscal policy, the central government has succeeded in achieving the goal of eliminating issues of special bonds in the FY 1990 budget. This will certainly allow the government to bring greater flexibility into budgetary decisions in the future, including moderate increases in fixed investment expenditures in line with economic growth. In this context, the U.S. Administration has expressed its view that Japan should raise the level of public sector fixed investment expenditures from about 7 percent of GNP currently to 10 percent, as a means of reducing the bilateral trade imbalance between Japan and the United States. It is important to recognize, however, that the level of public sector investment expenditures is already high in Japan and that increasing it further, in a fully employed economy, may raise not the level of total investment expenditures but the size of the government sector. It would be well for the United States to avoid any measure that might strengthen the power of the central government bureaucracy in Japan, when greater deregulation and decentralization of power in the economic decision making process is clearly in the best interest not only of Japan but also of the United States.

Table 1. SPECIAL ACCOUNTS OF THE NATIONAL BUDGET (FY 1989)

I. National Undertakings (11)	Mint Bureau Printing Bureau National Forest Service ¹ National Land Improvement ¹ Postal Service ¹ Alcohol Monopoly Harbor Improvement Airport Improvement ¹ Road Improvement Flood Control Postal Savings ^{1 2}
II. Insurance (11)	Welfare Insurance ² Seamen's Insurance National Pensions ² Agricultural Mutual Aid Reinsurance Forest Insurance Fishing Boat Reinsurance and Fishery Mutual Aid Insurance Export Insurance Reinsurance of Compensation for Automobile Accidents Postal Life Insurance and Postal Annuity ² Labor Insurance Earthquake Reinsurance
III. Management (8)	Foreign Exchange Fund National Schools ¹ National Hospitals ¹ Foodstuff Control Measures for Establishment of Landed Farms Automobile Inspection and Registration Patent Registration
IV. Public Investment and Loans (3)	Trust Fund Bureau ² Industrial Investment ² Urban Development Finance ¹
V. Consolidation Funds	Promotion of Electric Power Resources Development Government Bonds Consolidation Fund Designated National Property Consolidation Fund ¹ Local Allocation Tax and Local Transfer Taxes Coal, Petroleum and Petroleum-Substitute Energy

¹ Indicates that the account received FILP disbursements in FY 1989.² Indicates that the account provided FILP funds in FY 1989.

Table 2. GOVERNMENT-AFFILIATED CORPORATIONS IN JAPAN *

(Year of establishment in parentheses)

Finance corporations (koko—9 in number)

- People's Finance Corporation (1949)
- Housing Loan Corporation (1950)
- Agriculture, Forestry and Fisheries Finance Corporation (1953)
- Small Business Finance Corporation (1953)
- Hokkaido and Tohoku Development Corporation (1956)
- Japan Finance Corporation for Municipal Enterprises (1957)
- Small Business Credit Insurance Corporation (1958)
- Environmental Sanitation Business Finance Corporation (1967)
- Okinawa Development Finance Corporation (1972)

Special banks (ginko—2 in number)

- Export-Import Bank of Japan (1950)
- Japan Development Bank (1951)

* The budgets of these corporations are subject to Diet approval.

Table 3. MAJOR PUBLIC CORPORATIONS IN JAPAN

(Year of establishment in parentheses)

Public units (kidan or eidan—14 in number)

kidan	Japan Highway Public Corporation (1956)
	Forest Development Corporation (1956)
	Metropolitan Expressway Public Corporation (1959)
	Hanshin Expressway Public Corporation (1962)
	Water Resources Development Public Corporation (1962)
	Regional Promotion and Facilities Corporation (1962)
	Japan Railway Construction Corporation (1964)
	New Tokyo International Airport Corporation (1966)
	Maritime Credit Corporation (1966)
	Petroleum Corporation (1967)
	Honshu-Shikoku Bridge Authority (1970)
	Agricultural Land Development Corporation (1974)
	Housing and Urban Development Corporation (1981)

eidan	Capital Rapid Transit Authority (1941)
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Enterprise units (jigyodan—21 in number) *

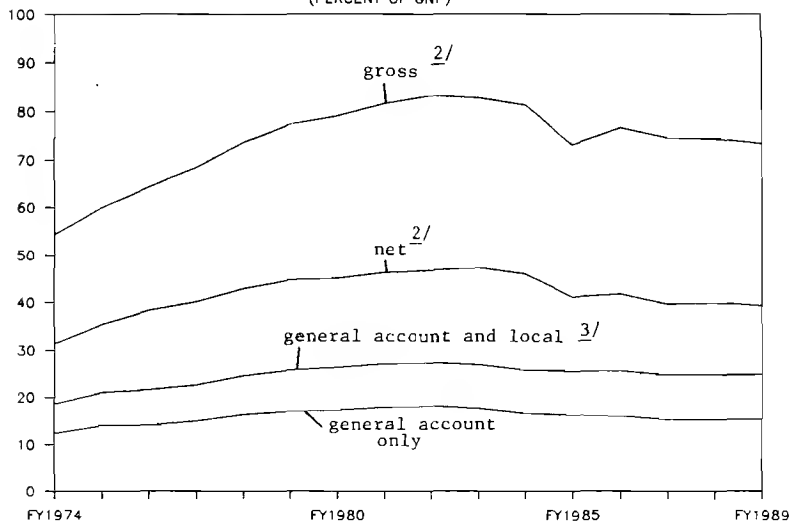
	Labor Welfare Corporation (1957)
	Employment Promotion Corporation (1961)
	Pension Welfare Service Public Corporation (1961)
	Postal Life Insurance and Annuity Welfare Corporation (1962)
	Metal Mining Corporation (1963)
	Pollution Prevention Corporation (1965)
	Power Reactor and Nuclear Fuel Development Corporation (1967)
	Japan Water Supply and Sewage Corporation (1972)
	Small Business Corporation (1980)
	Social Welfare and Medical Services Corporation (1985)
	Japan National Railways Liquidation Corporation (1987)

* Of this total, the table lists only those corporations which received FILP disbursements in FY 1989.

FIGURE 1

SIZE OF GOVERNMENT EXPENDITURES ^{1/}

(PERCENT OF GNP)

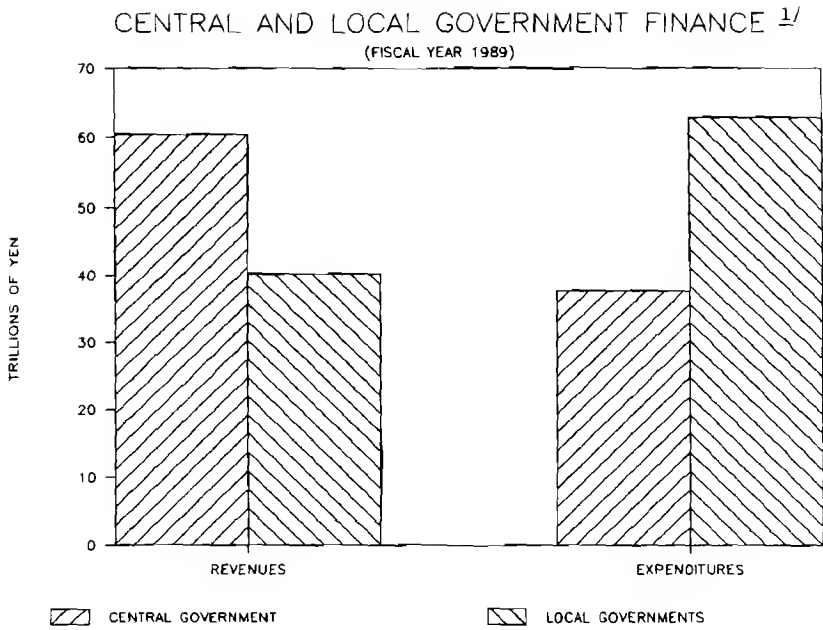


^{1/} In terms of the initial budgets.

^{2/} The sum of the general account and special account budgets of the central government, the ordinary budgets of local governments, and the budgets of government-affiliated corporations.

^{3/} The general account budget of the central government and the ordinary budgets of local governments.

FIGURE 2

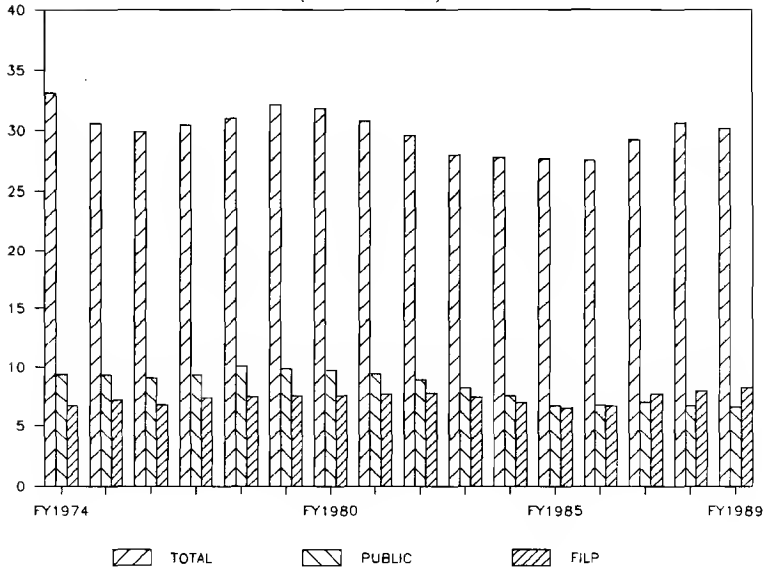


^{1/} In terms of the initial national general account budget and local ordinary budgets.

FIGURE 3

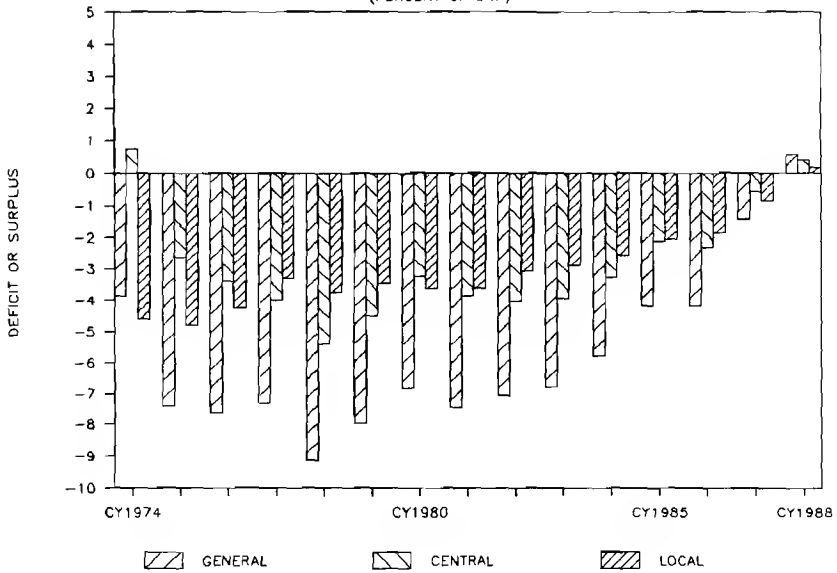
SOURCES OF FIXED CAPITAL FORMATION^{1/}

(PERCENT OF GNP)



^{1/} The shares of total and public sector fixed investment outlays as well as the size of FILP outlays as a percent of actual GNP.

FIGURE 4
PUBLIC SECTOR FISCAL POSITION ^{1/}
(PERCENT OF GNP)



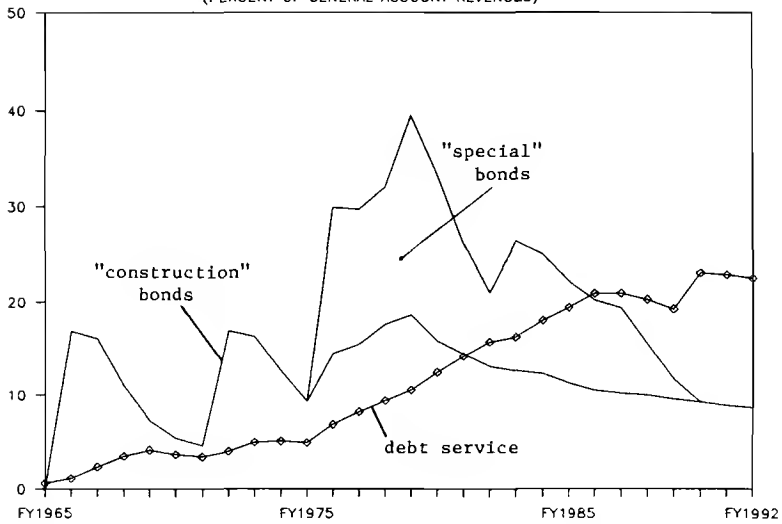
^{1/} The financial positions of the general, central and local governments as a percent of GNP.

Source: The Bank of Japan, Economic Statistics Monthly, Flow of Funds Accounts.

FIGURE 5

GOVERNMENT DEBT AND DEBT SERVICE ^{1/}

(PERCENT OF GENERAL ACCOUNT REVENUES)



^{1/} The shares of debt finance and debt service payments in total general account revenues of the central government in terms of the initial budgets or official projections.

II. GOVERNMENT AND BUSINESS

JAPANESE GOVERNMENT-BUSINESS RELATIONS

By Phyllis A. Genther ¹

CONTENTS

	Page
Summary	47
Perspectives on Japanese Government-Business Relations	48
The Domestic Perspective	49
The Japan Perspective	50
Historical and Cultural Determinants	50
Industrial Policy Perspective	51
Interaction Perspective	52
A Framework for Japanese Government-Business Interactions	53
The Factors	53
Cultural and Historical Lessons	54
Administrative Rules	55
Competitiveness	57
Economic Importance	58
Summary	59
Conclusion	60

SUMMARY

As Japan has challenged the supremacy of older industrialized countries in technology-intensive products, perceived differences in government-business relations and their roles in global competitiveness have become an important aspect of the bilateral trade debate. Because this issue has been dealt with only peripherally in previous U.S.-Japan trade discussions over visible Japanese tariff and nontariff barriers, American policy makers are just now becoming aware of the complexities of Japanese government-business relations.

The government-business relationship is the institutional structure within which a nation and private companies interact and work together, or fail to work together, to formulate and implement commercial policy. While relationships differ across nations and across industries within nations, the need to define competition globally and to learn from Japanese economic development requires understanding how and why specific interactions occur.

¹ The author is the director of the Japan Technology Program, Technology Administration, U.S. Department of Commerce. This report is an analytical document and should not be construed as a statement of U.S. Department of Commerce policy. It is based on an excerpt from Genther, Phyllis A. *A History of Japan's Government-Business Relationship. The Passenger Car Industry*. Ann Arbor, Michigan, Center for Japanese Studies, University of Michigan, 1990.

Within this institutional structure, formal and informal interactions occur between government and business. These interactions are similar to those in other industrialized nations. They occur formally through mechanisms such as industry advisory councils and public hearings, and informally through the day-to-day contacts among government bureaucrats, industry executives and trade association officials. Government attempts to direct industry through laws concerning subjects as diverse as taxes and land use, administrative regulations and various types of administrative guidance. Industry in turn attempts to influence government through political contributions, lobbying, petitions and industry consensus.

If the framework and tools of the government-business relationship are similar to those elsewhere, how is Japan different, and, if so, does it matter? The fundamental difference in Japan is that the acceptance of negotiation, and thus the acceptance of government and business involvement in commercial policy, facilitates the development and implementation of policies of which both industry and government approve. The Japanese government-business relationship matters because it affects Japan's economic development, which in turn affects global competition.

Because American policy makers frequently use perceived differences in U.S. and Japanese government-business relations to support or oppose domestic industrial policies and to justify both protectionist or free trade actions, it is essential to examine the realities involved. The realities in turn help determine if the Japanese government-business relationship is relevant for other nations' economic development and what role, if any, it should play in trade policy debates.

This article examines these realities by looking at Japanese government-business interactions. The first section delineates how U.S. policy makers and scholars have portrayed the Japanese government-business relationship. By understanding the perspectives used to analyze the relationship, we can establish a framework that is useful both for describing the realities of the relationship and for policy making. The second section describes the major factors that have affected how Japanese government and industry have interacted over time. It uses the automobile industry as an example to show how these factors affected policy choices. The conclusion discusses the relevance of the Japanese government-business relationship for trade policy decisions.

PERSPECTIVES ON JAPANESE GOVERNMENT-BUSINESS RELATIONS

U.S. perceptions of the relationship between Japanese government-business interactions and economic competition affects the development of U.S. trade policy. Without first understanding U.S. perceptions, it is impossible to understand the realities of Japanese government-business relations.

Differing perceptions about the role of government-business interactions are rooted in the way we analyze the nature and role of the international, American, and Japanese economies. These analyses provide a foundation from which to explore the complex interactions between Japanese government and industry. They approach the issue from several different perspectives, each of which

contributes to our understanding of how and why specific interactions occur.

Since the late 1960s, awareness of international economic issues has increased substantially among American scholars and policy makers. Attention focused first on how the activities of global actors, such as multinational corporations and regional economic associations, affected the power of nations. There was an implicit assumption by most policy makers that economic issues were important because they affected political relationships and, therefore, were not assigned the same importance in and of themselves as political and defense issues. This assumption has been accepted by many policy makers and has reemerged in discussions over appropriate trade policies and the weight that should be given to economic versus political considerations in relationships among nations. A recent example is the internal U.S. debate during negotiations with Japan over the FSX aircraft.

As a result, policy makers paid little attention to how interactions between government and business within nations affected global trade competition or to how the international economy, in turn, affected such interactions. There was little recognition that such interactions changed over time or of the factors that led to change.

When attention did turn to these interactions during the industrial policy debate of the early 1980s, another conceptual problem arose. Many policy makers were unable to separate their view of government-business relationships in global competition from their preferences concerning the role of the government in the American economy. Many studies sought proof of existing preferences rather than looking at how and why interactions occurred in Japan at different times. Thus, these studies dealt primarily with the ability of government to influence business or the ability of business to resist government intervention. This approach is not adequate to understand Japanese government-business interactions.

THE DOMESTIC PERSPECTIVE

Scholars who study American government-business relations often refer to the relationship as a static condition facilitating or hindering economic development by positing a fundamentally adversarial relationship in the United States versus a cooperative relationship in Japan.² They tend to transfer the way the relationship is dealt with as a domestic issue—primarily as the effect of regulatory policies—to the international arena. Since regulatory relationships involve the imposition of costs to achieve social goals or to control undesirable behavior, the studies do not have the tools to analyze instances of mutual cooperation.

In depicting government-business relationships as adversarial, scholars almost exclusively discuss interactions as effects of the domestic environment—legislation, culture, and historical experience. This perception leads them to trade policy options that stress that if weaknesses resulting from domestic, social, and technological

² For example, see Marcus, Alfred A. *The Adversary Economy*. Westport, Conn., Quorum Books, 1982; and, Gujarati, Damodar. *Government and Business*. New York, McGraw-Hill, 1984.

changes are resolved, American businesses would be competitive and as such would resolve any international trade problems.

Because of this emphasis, some scholars writing about Japan from the domestic perspective discount the relevance of comparative studies of government-business relations in foreign countries altogether, ignoring the impact of the international environment and disregarding relevant foreign experiences.³ While they show that interactions can be adversarial, they fail to discuss instances of cooperation or the existence of mutual goals. The traditional approach thus sheds light primarily on regulatory interactions and does not by itself offer a framework for understanding Japanese government-business relations.

THE JAPAN PERSPECTIVE

Policy makers have discussed government-business relations in the context of U.S.-Japan relations. For the purpose of examining and simplifying concepts that help us to understand Japanese government-business interactions, these studies fall into three basic groups. The first group views the relationship as a reflection of cultural and historical factors. The second group concentrates on the concept of industrial policy and the role government plays in economic growth. The third group looks at Japanese government-business relationships as an interactive partnership.

Historical and Cultural Determinants

Studies in the first group, which sees the government-business nexus as a reflection of cultural and historical factors, describe the relationship as the "missing element" that explains Japan's post-war economic performance.⁴ They stress the "special and unique way in which the Japanese government guided the economy's development," a way influenced by Japan's history and culture.⁵

Historically, this group thinks the close communication between government and the business community, which these writers believe has existed since the Meiji era (1868-1912), is one of the most important elements in Japanese government-business relations. Because Japan was forced to open its country to the rest of the world, it had to design policies to achieve the rapid and forced growth of industry to avoid being partitioned like China. Thus, the unique relationship between government and business—a special coalition between the bureaucracy and the private sector—grew out of the Meiji government's attempts to foster modern industry through various subsidies.

The cultural elements stem from Confucianism and native traditions. They often are behind references to "consensual decision making," the "group spirit," or "the vertical society."⁶ In the context of government-business relations, this view implies that Japanese leaders are conditioned by their culture to preserve harmony

³ Jacoby, Neil H., ed. *The Business-Government Relationship*. Pacific Palisades, Ca., Goodyear Publishing Company, 1975. p. 162.

⁴ U.S. Department of Commerce. *Japan, The Government-Business Relationship*. Washington, U.S. Govt. Print. Off., February 1972.

⁵ Ibid.

⁶ For example, see: Nakane, Chie. *Japanese Society*. Berkeley, University of California Press, 1970.

in their relations, as for example in the postwar practice of consensual decision making, *ringi sei*. It also implies that horizontal business mergers are difficult to achieve because they go against cultural predispositions toward vertical relationships and group cohesiveness.

This group of studies, like studies done from the domestic approach, provide only a partial insight into government-business interactions as a trade issue. Policy makers are to some extent guided by cultural norms and historical experiences. These factors offer insights into such practices as the formation of coalitions, provide policy makers with historical lessons, and remind us that culture can affect how events and concepts are perceived. But, if cultural and historical contexts are the primary shapers of the government-business relationship, we would expect the relationship to change quite slowly and we would be able to explain all current behavior as extensions of some previous pattern. These patterns, however, are often overridden by other considerations.

Industrial Policy Perspective

This category of study examines the Japanese government-business relationship within the context of industrial policy and the role of government policy in economic development. It asks whether government or business is primarily responsible for Japan's rapid economic development. This category includes two approaches; one supports the supremacy of the state, the other the importance of markets.

The statist approach often presents political institutions, such as Ministry of International Trade and Industry (MITI), as the primary determinants of the government-business relationship.⁷ Proponents of this point of view attribute a large role to the state in economic development and see a world "in which bureaucrats wield exceptional power and influence."⁸ Some want the United States to learn from the Japanese government's perceived success in facilitating development; others use the concept as justification for an activist U.S. trade policy to offset the effects on world trade caused by the intervention of the Japanese state.

Political institutions can help predispose a relationship to be cooperative or adversarial and can place constraints on business actions. As such, they offer insights into how the government perceives and attempts to carry out its role in economic development. For example, some Japanese bureaucrats perceive their role in promoting industrial development as a method to maintain control of the Japanese home market.⁹ However, these studies often fail to pay sufficient attention to the actions and initiatives of the private sector and so fail to account fully for variations in government-business relationships across industrial sectors and for instances in which public policies fail to achieve their stated purposes.

⁷ For example, see: Johnston, Chalmers. *MITI and the Japanese Miracle*. Stanford, Stanford University Press, 1982.

⁸ Halberstam, David. *The Reckoning*. New York, William Morrow and Company, 1986. p. 27.

⁹ Tsuruta, Toshimasa. *Sengo Nihon no Sangyo Seisaku*. Tokyo, Nihon Keizai Shimbunsha, 1982. p. 1-187.

Advocates of the market approach depict political institutions as playing only a small role in promoting economic development. Their studies correctly point out the existence of a strong private sector in Japan and the developmental effects of competition. They stress that Japan's economic development resulted from a free market typified by intense competition and successful entrepreneurs and cite instances where the Japanese government failed to impose its ideas on business. In this context, the only legitimate government role is the creation of a macroeconomic environment conducive to business and the imposition of regulations to achieve social goals. However, in their attempt to demonstrate the supremacy of the private sector, they discount the role of states, and thus the importance of government-business interactions in shaping economic development.

The separation of politics and economics reflects an academic tradition dating to 18th-century classical economic theories and to later 19th-century neoclassical economists such as Alfred Marshall.¹⁰ Theorists separated the two disciplines by arguing that while economics is a system based on production, distribution, and consumption that operates under natural laws, politics is a system of power, influence, and public decision making that disrupts natural laws but is necessary to provide essential services such as defense. Therefore, the disruptive influence of government should be excluded from the harmonious economy. This underlying assumption obviously hinders the study of government-business interactions by imposing an ideal in which there is as little interaction as possible.

Interaction Perspective

This group looks at interactions between government and business over a period of time. Richard Samuels terms this interaction "the politics of reciprocal consent," in which a partnership exists in a constant state of negotiation and renegotiation. Other recent studies also recognize interaction between economic actors and the government, and record instances of political conflict and compromise in Japan.¹¹

Studies using an interaction perspective record instances of government and private initiatives that result in market transformations but try not to presuppose the supremacy of the state or the market. They rely heavily on a detailed knowledge of interest group interactions within specific industries. They propose that no monolithic government or business exists; rather there are many players and levels of interaction. Because a detailed knowledge of each industry is necessary, these studies sometimes are dismissed

¹⁰ Many liberal economists, who espouse the preeminence of the market mechanism and price competition, trace their ideas to the work of the British philosopher, John Stuart Mill. Mill emphasized the primary value of liberty (individualized choice). Therefore, he preached that the power of the government in any form should be minimized, stating that "laissez-faire should be the general practice; every departure from it, unless required by some greater good, is a certain evil" (idem, *Principles of Political Economy* [London, 1864], p. 569). Many Japanese, on the other hand, believe that "excessive competition" can result in overproduction, price cutting, loan defaults and the bankruptcy of major companies. Therefore, there is a legitimate role for government in strengthening the economy in preparation for international competition.

¹¹ Samuels, Richard J. *The Business of the Japanese State*. Ithaca, Cornell University Press, 1987. p. 1-290.

as presenting concepts that are unique to a specific industry and not transferable to other sectors or to economic development in general.

They do, however, delineate domestic and international factors that place constraints on, or encourage, interaction. They recognize that no single factor such as culture or the market can explain fully either the interactions themselves or economic development. They also imply that changing circumstances can alter both the interactions themselves and the role of individual factors in determining outcomes. Thus, the interaction perspective provides the best framework within which to analyze interactions between Japanese government and business.

A FRAMEWORK FOR JAPANESE GOVERNMENT-BUSINESS INTERACTIONS

The changes in and the types of Japanese government-business interactions are complex. Interactions vary considerably depending on the situation, but at the same time there are elements of continuity. Interactions also reveal that no monolithic government or private sector controls the relationship; rather many actors shape the relationship including Japanese government agencies, Japanese and foreign companies, foreign governments, multilateral organizations, and individuals. Most importantly, each of these actors precipitate interactions within the relationship that result in public policies.

Understanding that government-business relationships are complex interactions and contain elements of continuity and change is not sufficient to comprehend the ramifications of these relationships in global competition. But this understanding does lead to three further questions. What are the major factors that shape the relationship by creating change and providing continuity? How did the government-business relationship contribute to Japan's global industrial competitiveness? And, what insights exist into the development of policies to cope with the government-business relations issue in the context of international trade?

Complex government-business interactions are easiest to conceptualize by analyzing a specific industry. The Japanese automobile industry is a particularly provocative and instructive example because it reveals that the effectiveness as well as the ineffectiveness of certain Japanese public policies and partially reflects the way government and business interact. Changes in the government-business relationship in the automobile industry also often have presaged changes in the Japanese government-business relationship overall. Finally, because interactions in the Japanese automobile industry reflect many different patterns, it is possible to use this industry's government-business relationship to support opposing positions in the trade debate and in analyses of the role of industrial policy in Japanese economic development.

THE FACTORS

Interactions in Japan depend on several major factors. These factors are revealed in the history of the relationship between the Japanese government and the automobile industry from its origins to the 1980s. They are: (1) cultural and historical lessons that influ-

ence the behavior and decisions of policy makers; (2) administrative rules, the parameters agreed to by consensus or imposed by force within which the government makes and carries out policy; (3) the competitiveness of an industry; and (4) the importance, real or perceived, of an industry to economic development.

Cultural and Historical Lessons

Culture and history provide continuity in the relationship. Culture helps to reinforce the constant of negotiation in the government-business partnership. History provides policy makers in government and business with lessons they remember and creates common perceptions of the competitive environment that are reflected in policy.

Japanese culture, through its emphasis on harmony, promotes consensus building. Consensus building in turn reinforces a policy making pattern based on negotiation, negotiation being the recognition of the interdependence between government and business that results in formal and informal bargaining and accommodation. Thus, while there was much disagreement during the development of the Japanese automobile industry between government and business, conflict did not result in polarized positions and rarely in open confrontation. Each side accepted the other's right to a role in policy formation even when it was not enamored of the other's position. Ultimately, compromises were worked out that helped grant a certain legitimacy to public policies. This resulted in a pattern of negotiated policies. The effect of this pattern was directly apparent in relations between the Japanese government and the automobile industry in the development of emissions policies in the 1970s and the role of advisory commissions (*shingikai*) in the postwar period, and indirectly evident in the acceptance of the right of all parties to have a role in policy formation.

In contrast, cultural tendencies toward vertical relationships heightened adversarial relations when MITI attempted to create horizontal mergers among the automobile companies in the 1960s in an attempt to create a few strong producers who could withstand internationalization. The industry rebelled even though the businessmen who were members of the relevant advisory committee agreed in principle with the government's concern over excessive competition. They rebelled partially because horizontal mergers went against the cultural tendency toward vertical value order and because no company wanted to be the one shut out of the market.¹²

Policy implementation through administrative rather than legislative means reveals another indirect effect of culture. Culture reinforces the tendency to avoid the direct confrontations more common with legislative methods of policy implementation, especially with regulatory policies. Thus, while culture does not create administrative guidance, it reinforces the industry's responsiveness to the Japanese government's frequent use of it.

¹² For an example of a study that includes culture as a factor, see: Dore, Ronald. *Taking Japan Seriously: A Confucian Perspective in Leading Economic Issues*. Stanford, Stanford University Press, 1987.

History, through the lessons it teaches, also provides continuity in the relationship. In the 1950s, Japanese government and business policy makers remembered their lessons about the possible negative impact of foreign capital and unrestrained imports on an uncompetitive infant domestic industry during the 1930s when American vehicle makers almost overwhelmed Japanese domestic producers. These lessons grew out of experiences common to most of Japanese industry during the prewar period.

Because government and business learned the same lessons, they sought, and cooperated in creating, policies that lessened the vulnerability of the industry through protective measures or technological innovation. These experiences led to a widespread awareness of the international environment's role in creating and in undermining competitiveness. Everyone knew that General Motors, Ford, and other foreign companies were not only competitors but also models to emulate.

History also teaches that Japanese exports might be discriminated against and denied access to foreign markets. Discussions over Japan's membership in multilateral organizations reinforced this lesson in the 1950s as did tension over textiles in the 1930s. It helped shape protectionist and developmental policies during the internationalization period in the 1960s and 1970s and created a sense among policy makers during the U.S.-Japan automobile crisis of 1979-80, especially in the Ministry of Foreign Affairs and eventually in MITI, that Japan would have to compromise to preserve its overall market access.

While culture and history provide continuity in the relationship, other factors, especially administrative rules and competitiveness, often override them to create change.

Administrative Rules

The administrative rules under which the government operates affect the relationship—rules being the parameters agreed to by consensus or imposed by force within which the government made and carried out policy.¹³ Administrative rules need not be formal. The rules arose from the domestic environment (e.g., military or civilian government) and from the international environment (e.g., the Occupation authorities and multilateral trade agreements). The rules on interactions are most apparent for the automobile industry when comparing the wartime and postwar periods.

From approximately the time of the Manchurian Incident in 1931 to 1945, the relationship between the automobile industry and the Japanese government was characterized by the subordination of industry to military needs. Subordination did not mean that interaction and negotiation did not occur; Toyota and Nissan held discussions with the Ministry of Commerce and Industry (MITI's predecessor) about the Automobile Manufacturing Law in 1935 which sought to exclude foreign producers and establish truck production, and the formation of the Survey Committee for the Establishment of the Automobile Industry in 1931 that included govern-

¹³ Several studies stress the importance of institutional structures in policy formation including: Johnston, *MITI and the Japanese Miracle*.

ment, industry and academic representatives are evidence to the contrary. However, subordination did place strong constraints on business by specifying what type of vehicles could be produced (trucks), what companies would produce them (Toyota, Nissan and Diesel Jidosha Kogyo), and who would get raw materials. Nissan and Toyota used this period to gain entrance into the Japanese automobile market, but they had to develop production plans within the boundaries set by what the government felt was important. Most importantly, the government did not permit them to make passenger cars and forced them to work through the government-mandated control associations to obtain materials and to sell.

Beginning in the Occupation period (1945-1952), industry was able to exert greater and more direct influence over public policy. The wartime control associations evolved into voluntary trade associations. Regulations prohibiting passenger car research and production were repealed. Companies no longer had to be authorized in order to produce, which allowed new companies to enter the industry. The government worked more closely with the industry, sought its advice, and received unsolicited advice, when developing initiatives to propose to the Supreme Commander for the Allied Powers (SCAP). MITI's 1952 policy paper on the automobile industry that argued the importance of the motor vehicle industry for economic development also incorporated industry's views. In fact, in the late 1940s one of the first tasks of the Automobile Manufacturers Association (one of the predecessors of the Japan Automobile Manufacturers Association) was to lobby SCAP and the Japanese government to support the industry and to help build an industry consensus—a role it continued to play during liberalization in the 1960s, the negotiation of export restraints, and up to the present. When industry's views were overlooked, as occurred during the People's Car Project in 1955 when MITI sought to fund a single producer to make a small car, business was likely to oppose government policies.

Japan's parliamentary structure also affects interactions. It helps reinforce the tendency, along with culture, to use administrative rather than legislative methods of policy implementation. It also is responsible for the existence of an elite bureaucracy that takes the governmental lead, rather than the legislature, in policy formation. This structure permits more cooperation and negotiation because issues are not politicized as often. When issues are politicized, as in the case of auto emissions in the 1970s, there was much less room for government and business to maneuver in their negotiations. In addition, the bureaucracy has more respect and influence under Japan's parliamentary system, which helps make close and continuous consultation with industry possible.

The rules continued to change after independence, albeit more subtly. The changes in the rules in the 1950s and 1960s reflected constraints put in place by the international environment more so than any change in domestic institutions. In the 1950s, the government controlled foreign exchange allocation, which gave it leverage in its negotiations with business. It threatened to cut off foreign exchange for those automobile companies that did not fulfill the domestic content provisions of technology tieup agreements it had agreed to for four major producers in the early 1950s to speed up

their technological development, but at the same time allocated companies foreign exchange to import machine tools. It was able to enact protective policies that restrained imports and developmental policies that promoted demand and technological innovation because of its transitional status under multilateral arrangements and because the United States wanted Japan to be an economic bulwark against communism in Asia and so tolerated Japanese protectionism. Automobile-related businesses, especially the larger companies, benefited from these controls that kept imports (and some smaller Japanese companies) out of the market.

After Japan joined the IMF, the OECD and the GATT, the government lost some control over foreign exchange and had to liberalize its market. These changes lessened the government's leverage over industry. The government sought new forms of influence, which resulted in the ill-fated Special Measures Law for the Promotion of Designated Industries of the 1960s which sought to merge companies to create larger firms that many Japanese felt would be more able to survive foreign competition after liberalization. Thus, because the international environment created changes in the administrative rules in Japan, in spite of the endorsement of the merger concept by special industry advisory committees, the government could not force business to accept merger schemes, and it lost much of its control over foreign capital investment in the 1970s. As a result, even though the government preferred mergers among domestic companies to tieups between domestic and foreign companies, Mitsubishi, Isuzu, and Mazda concluded partnerships with foreign firms.

Administrative rules constrain how government and business interact to create policy and affect the amount of leverage government has over business. Again, interaction and negotiation remain, but they operate under different constraints at different times.

Competitiveness

The automobile industry's competitiveness strongly affects its relationship with government—competitiveness being the ability of industry to compete globally without government protection or, in other words, the industry's vulnerability in the international environment.

A competitive mature industry with wide-ranging influence on the economy and a vulnerable infant industry with potential can both be perceived as economically important. However, the relationship between government and business differs in these two cases because of competitiveness.

The competitiveness of the Japanese passenger car industry was low and its vulnerability high through the 1950s. In the 1930s, General Motors, Ford and Chrysler had onshore assembly plants. Japanese domestic production was small and of bad quality. The industry survived primarily because the American companies were forced out of the market. In the 1950s, European small car exports and foreign companies' attempts to establish sales subsidiaries threatened the Japanese domestic producers again. The still uncompetitive passenger car industry needed and accepted protective and developmental incentives that involved a high level of govern-

ment direction but gave it room to experiment with new technology and to adapt industrial practices to meet local conditions.¹⁴

As the automobile industry became competitive, its interactions with the government grew more adversarial. During the 1960s and 1970s, companies increasingly opposed government policy initiatives that they felt were not in their best interest even though they still often agreed on the basic problems being addressed. The Mitsubishi/Chrysler tieup and Honda's decision to manufacture passenger cars in the 1960s are clear examples of industry opposition to government wishes. However, even in this period, industry cooperated with the government in forming policies to delay liberalization. This cooperation continued until some companies saw that it was not in their best interest, a decision possible because of changes in competitiveness and administrative rules.

An industry's competitiveness affects public policy options. Initially, government and business used protective and developmental policies to help the automobile industry grow. After the industry matured, policies expanded to include regulatory controls on emissions, safety requirements, and restraints on exports. There were fewer incentives for the industry to cooperate with these intrinsically restrictive regulatory policies than with the earlier developmental policies. (It is always easier to cooperate when someone else is being penalized, i.e., a foreign producer, and when someone else is responsible for implementing an agreed upon policy, i.e., the government.) After much hesitation the industry did cooperate with the government on emissions controls, but only after the smaller companies perceived an opportunity to use the controls to increase market share. The industry strongly opposed export controls. It accepted them only to prevent the threatened enactment of restrictive American local content legislation. The industry's competitiveness in the 1970s also allowed it to have its own listening posts in Washington, adding an independent source of information and yet another dimension to its negotiations with the Japanese government on trade over export restraints and auto parts procurement in the 1980s.

Economic Importance

The automobile industry's importance—real or perceived—to the economy also influences how government and business interact. Those who argue that industrial policy did not affect the automobile industry's economic development point out that this industry was not at the center of economic development plans and was only one of many "key" industries. However, these facts do not negate the relationship or the possibility that assistance, even if not as large as in some industries, was provided because the industry was perceived as important.

Prior to the 1930s, the industry was so small that interaction was limited to a small military subsidy program for trucks. As the industry proved crucial to foreign exchange conservation and to military strength, the relationship grew more active. The government

¹⁴ Cusamano, Michael A. *The Japanese Automobile Industry*. Cambridge, Harvard University Press, 1985. p. 7.

attempted to create a national vehicle, the "Isuzu," in 1929. When this attempt failed, the government worked with Toyota and Nissan in the mid-1930s to create a domestic truck industry.

After World War II, the industry lobbied the government to support the industry's interests with the Occupation authorities. The government cooperated but did not place the same importance on the automobile industry as it did on other more basic industries such as steel. Toward the end of the Occupation, a discussion between MITI and certain members of the financial community on the feasibility of developing a domestic passenger car industry revolved around different perceptions of the industry's economic importance. MITI argued that it was important for the development of the machinery industry; members of the financial community were unconvinced. Ultimately the industry's potential for economic development, demonstrated by procurement of Japanese vehicles during the Korean War, swayed those who had previously been unenthusiastic. The government then supported the industry through a variety of protective and developmental policies. These policies in turn created an atmosphere conducive to cooperation.

The industry, however, still was not at the center of economic development plans and received just enough assistance to provide minimal survival security. The decision to provide only minimal financial support did not lessen the amount of interaction that occurred, it just occurred on other issues. By the mid-1950s and even more so by the 1960s, the government fully agreed with the industry that it was central to economic development and, so, sheltered the industry from liberalization for as long as possible.

The industry's and government's similar goals in the initial post-war period contributed to a cooperative relationship and to the economic development of the industry. Agreement on the economic importance of the industry, however, could not sustain a cooperative relationship when substantial disagreement developed about specific methods and policies at the same time that competitiveness had increased the industry's leverage and the administrative rules had changed.

SUMMARY

Each factor affects the government-business relationship by creating tendencies toward continuity or change, and by interacting with one another to create a dynamic environment. The potential effect of each factor must be carefully evaluated in relation to the others to discover how it affects any particular situation.

Cultural and historical lessons provide continuity throughout the relationship. Two such lessons are especially important. First, government and business accept that they each play a role in policy formation. Both suggest policy initiatives, although the government drafts the actual policies. Each side's acceptance of the other's role helps create a tendency to formulate policy through negotiation. Second, government and business are aware of the close association between the international environment and competitiveness. Their awareness of this connection creates a sense of urgency and provides an incentive to work together.

Continuity does not mean that business and government always cooperate and agree; quite often they do not. Continuity also does not prevent change because factors that create change often override it. Industry's competitiveness, and thus its ability to oppose government policy initiatives, changes. The rules of the international environment, and thus the government's ability to enforce policies, change. And, the industry's importance to the economy changes, altering in turn the type of policies needed.

The result has been a Japanese government-business relationship that is dynamic and effective. It is important, however, to understand that the effectiveness of the relationship grew out of its interactiveness and out of the way in which the various factors affected each other during particular periods of time.

CONCLUSION

Government-business relationships are relevant for trade policy decisions. They are relevant because they affect economic development, which in turn affects global competition. Global competition then in turn affects every country's government-business relationship. Because true competitiveness increasingly is found and tested in the global arena, not the domestic market, policy makers at the very least need to know why different relationships exist and how they interact. This understanding will help policy makers develop better methods to influence behavior and to reach solutions acceptable to all parties.

The Japanese example shows that ideologically-based explanations of government-business relationships are invalid and culture bound. The trade debate over industrial policy and the role of government-business relationships tends to use such explanations to justify policy actions. However, such explanations fail to reveal the interactiveness of relationships and fail to take into account differing situations among countries and among industries within a country. Policies need to adjust to the fact that relationships change as the factors around them change. Therefore, policy makers need to seek out those factors for specific industries that promote continuity and discover how, or if, they will be overridden by other factors that create change.

Japan also shows that different government-business relationships lead to different policy choices and to different degrees of success for policy implementation. Whether or not the resulting policy choices and their implementation will encourage or discourage competitiveness is highly dependent on the interaction of many factors, including the international environment. It challenges a long-held assumption that government-business relationships arise purely out of domestic issues and that these relationships are not pertinent to trade policy formation.

The Japanese government-business relationship and the policies it engendered facilitated the development of Japan's automobile industry by protecting the industry in its formative stages and by providing developmental incentives. These measures gave industry the minimal security it needed to experiment and to grow before it had to test its competitiveness in export markets and in its home market against foreign competitors. These measures grew out of

interactions among many governmental and private actors, not simply from a prescient government or a competitive market. The current government-business relationship does the same for newly developing industries, but interactions are subject to greater constraints from the international environment than existed in the 1950s and 1960s.

Given this, it is necessary to remember that, just as the government-business relationship reflects the interaction of several factors, many factors contribute to the creation of a successful industry. The Japanese automobile industry grew because of strong entrepreneurs, a competitive market, an educated population, and developmental timing. The list of factors for the automobile industry, and for other Japanese industries, is infinite.

However, just as certain factors are more important than others in shaping government-business interactions, some factors are more important in economic development. For Japan, one of those factors has been the government-business relationship.

The relationship is important to economic development first because of the acceptance of negotiation, and thus the acceptance of the involvement of both government and business, facilitates the development and implementation of policies of which both industry and government approve. In instances where consensus cannot be achieved, often industry is competitive enough to no longer need help.

Negotiation existed in Japan before the postwar period but did not lead to as dynamic an industry because business initiative was inhibited. The creation of a market economy and changes in administrative rules removed restrictions on business and gave it a stronger role in the partnership. Thus, in postwar Japan both government and business are free to play roles in policy making.

A negotiated set of public policies is the aspect of the relationship often cited by those seeking protectionist policies in the United States. They see these policies as evidence of a collusive partnership to overtake world markets. The partnership, however, rather is one that recognizes a mutual goal to develop competitive industries to protect the home market, which results in the added benefit of competitive exports. The policies developed often are not systematically planned but result from negotiation, an awareness of the international environment, and the perceived economic importance of specific industries. Whether or not the ramifications of this goal still are acceptable to other nations or will have to be modified given Japan's new economic strength currently is being discussed.

Finally, without the acceptance of negotiation in policy formation, important viewpoints from government and business go untapped in developing policies to meet global competitive challenges. Without international pressure on Japan to meet its obligations under multilateral agreements, Japanese industry would not feel as pressured to become competitive quickly.

In the 1990s, some of the factors affecting the Japanese government-business relationship will change. The elements of continuity will remain, but the competitiveness of the Japanese economy and the international environment will change. If there is a switch in the ruling party, administrative rules might change. In addition,

interest is beginning to increase in policies that stress the achievement of broader societal goals such as better living standards for consumers. The existence of strong competitive Japanese multinationals and the increase in global strategic alliances also will undoubtedly have an impact on the Japanese government-business relationship. It is too early to predict if the relationship's dynamism will remain and whether the acceptance of negotiation in policy making will remain as strong.

BUSINESS-BUSINESS RELATIONS: AUTO PARTS SOURCING IN JAPAN

By Michael J. Smitka ¹

CONTENTS

	Page
Summary	63
Japanese Purchasing Systems	64
Overview	64
Historical Development	66
Rivalry and Cooperation	67
Rivalry	67
Cooperation	68
Current Opportunities and Future Changes	69
Conclusions	70

SUMMARY

Over the last twenty years, the Japanese have significantly opened their domestic markets, while firms have become more international in their orientation. Part of this is due, of course, to pressure from the U.S. Congress and successive Administrations. As to be expected, one consequence of this erasing of market distortions has been an increase in Japanese competitiveness.

At the same time, the American auto industry has made tremendous strides. Productivity and quality have improved markedly; much of the gap between American and Japanese auto makers has been closed. With the weak dollar and rapidly rising labor costs abroad, many American auto parts makers are now cost-competitive with those in Japan. On the face of it, selling to Japanese auto firms should be easy. The Japanese assemblers, however, buy parts from only 200-300 firms and have often been buying continuously from the same supplier for 40 or more years. Closer inspection shows there is more competition than meets the eye, but American firms should surely be making some inroads.

Japanese auto firms, however, are interested in buying design and manufacturing services, *not* parts. In the United States, the Big 3 automakers historically purchased simple parts under one-year contracts from the lowest-cost producer. To facilitate this, the auto firms undertook most of the design work in-house, and provided detailed blueprints, and often tooling, to their vendors. In contrast, Japanese auto firms often bought subassemblies rather than simple parts, and, over time, came to expect vendors to develop detailed blueprints on the basis of general specifications. The Japa-

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nese auto firms currently maintain small in-house design and engineering staffs and simply cannot turn out a new car without such input from suppliers. But they are able to design a car in three years—versus five in Detroit—and at half the cost. Production costs *have* risen; Japan no longer undersells us, but they do outmaneuver us.

In general, selling in Japan requires more than being competitive in price. In the case of the automotive industry, suppliers must be able to provide not only quality control and just-in-time delivery, but must also have significant design capabilities. Because of Detroit's purchasing practices, relatively few American firms are staffed to do this. In addition, they must be eager to enter a "strategic alliance," with all concomitant up-front costs, to establish a physical presence and, by undertaking a series of low-risk (but low-profit) orders, a working relationship.

Japanese car firms now hold 30 percent of the U.S. market and are building a manufacturing base in North America; Honda, Nissan and Toyota are also slowly starting to build design and engineering capability. It is clearly important for any parts firm to sell to these auto makers and not just the Big 3. The MOSS² talks have pushed the Japanese auto firms to do more, and it is important that policy makers maintain access as an issue. But Japanese auto parts firms are more willing to establish a manufacturing base here than U.S. firms are to set up an engineering office in Nagoya. Further investigation also is needed on whether or not the U.S. Government can help American firms do more in this area.

JAPANESE PURCHASING SYSTEMS

OVERVIEW

Due to the vagaries of history, Japanese automotive firms adopted manufacturing and marketing strategies that varied from those of the U.S. Big 3 across many parameters. During the 1920s and especially the 1930s, the Big 3 integrated a wide range of parts and components manufacturing. In turn, they concentrated their parts purchases on simple items, which they would buy on short-term contract from a host of vendors. (GM has over 10,000 suppliers—while employing 400,000 in North America.)³ In contrast, since the 1950s, the Japanese auto firms have avoided extensive integration into parts production. (As a result, Nissan and Toyota employ 120,000 while producing nearly as many vehicles.) Rather than depending on the purchase of simple parts from a host of suppliers, the 11 Japanese automotive firms have instead each developed a network of 200–300 subcontractors with whom they maintain close ties. The whole industry has only 1,200 direct suppliers.⁴

One consequence of this structure is that Japanese suppliers take over tasks which, in Detroit, are performed by the various divisions

² Market-oriented, Sector-selective talks between the United States and Japan. Automobile parts were added as a topic in 1986.

³ See Helper, Susan. Strategy and Irreversibility in Supplier Relations: The Case of the US Automobile Industry. Forthcoming in *Business History Review*.

⁴ See Smitka, Michael. The Invisible Handshake: The Historical Development of the Japanese Automotive Parts Industry. Forthcoming in *Business and Economic History*, 2d series, v. 19, 1990.

of the Big 3. Suppliers are, of course, responsible for manufacturing, including quality control and just-in-time delivery. They also subcontract out parts to smaller firms which, in size and technical capability, more closely resemble the traditional parts vendor to the Big 3. But, unlike the typical Midwestern parts firm—or even in some cases the parts manufacturing operations of the Big 3—they also play a major role in product development. Often, their involvement begins at the pre-sourcing stage, working with the automotive firms to develop component specifications. Parts firms then undertake the detailed design work, make and test prototypes. They then engineer parts and production facilities, design, and order or build their own tooling.

Using outside suppliers turns out to have many advantages. During the critical 1950s and early 1960s, the auto firms were able to check the strength of militant labor unions and hold down unit costs. They were also able to draw upon suppliers' capacity and borrowing abilities, and hence reduce their need for outside financing.⁵ Most importantly, however, there was strong rivalry among parts makers, as will be detailed later. The owner/operator of a parts firm faced a far stronger incentive to reduce costs than a division manager: their firm's survival and their personal fortune depended upon doing so.

In fact, parts producers were historically the single largest source of cost reductions in the industry. Over time, suppliers worked harder to improve their product and cut costs than did the auto firms' own plants. Furthermore, since purchases in the Japanese auto industry comprise 70 percent of total manufacturing costs, continual small improvements in supplier operations were crucial to success. Thus, during 1958–1965, the formative years of the industry, the Japanese assemblers halved the cost of making a car. Lower parts prices accounted for 53 percent of the reduction and materials prices for 16 percent; only 31 percent stemmed from internal cost savings.⁶ Subcontracting was thus integral to surviving in the domestic market, and to the eventual achievement of international competitiveness.

Strategic procurement, however, forces dependence on the other party. Since it turned to vendors only for simple items, Detroit bought parts merely by sending out requests for quotes; purchasing was a clerical function. Suppliers made minimal investments in specialized facilities—the assemblers often held title to tools and dies—while the auto firms deliberately used multiple sourcing to minimize their dependence on a given supplier. There was no need for ongoing ties. In Japan, however, not only are the parts that suppliers make more complex, but the ancillary services are far more important. Making a component or subassembly is intrinsically harder, and requires far more specialization. In addition, the provision of engineering and design services requires a close working relationship. Ties are far more complex than in Detroit, and entail a much broader range of interaction; purchasing is consid-

⁵ There are U.S. parallels. Labor cost is clearly behind some of the drive toward outsourcing; the recent joint venture between GM and Chrysler in transmissions is designed to share risk and reduce financing requirements.

⁶ See table 3.7 in Smitka, Michael. *Competitive Ties: Subcontracting in the Japanese Automotive Industry*. New York, Columbia University Press, forthcoming.

ered a key strategic function of the firm, and is often staffed by former design engineers. Most importantly, in the short run, it is no longer possible to substitute one supplier for another—or for suppliers to substitute one customer for another.

Interdependence is not easy to manage. What is to keep either firm from holding out at the last minute for better terms from the other? A supplier can threaten to halt production for an extended period, the auto maker can threaten to put the supplier out of business. Contracts are of no avail. As complexity grows, they quickly become unwieldy, and turning to an outside party to adjudicate is likely to offer little satisfaction. But without the internal hierarchy of a firm, neither can problems be kicked upstairs for resolution. Instead, firms must develop a working relationship; ultimately, they must trust each other.

HISTORICAL DEVELOPMENT

In the 1930s, Japanese vehicle makers had been vertically integrated in the manufacture of parts and components, and even specialty steel. But to lessen the power of the militant Japanese labor movement of the late 1940s, the fledgling Japanese automotive industry subcontracted much of the production of parts to smaller, typically independent, firms. Since there was excess capacity into the 1950s, tapping suppliers allowed the auto firms to increase output quickly during and after the Korean War. They were able to do this because of the initially low volume of production and the reliance at the time on general-purpose machine tooling. (In 1955, the industry turned out a mere 20,000 cars and 50,000 trucks and buses.)

When demand began to expand rapidly in the late 1950s and early 1960s, the auto firms lacked the financial means to pull work in-house and, at the same time, expand their assembly capacity. Fearing a possible recession and disputes over layoffs, they also wanted to avoid increasing direct employment and swelling union ranks. As the auto assemblers began to adapt mass production methods, with the assistance of U.S. and European firms, they, in fact, actually shifted additional work to their suppliers—unlike their foreign exemplars. And along with increasing the quantity of their purchases, the Japanese auto makers also shifted to purchasing more complicated parts and entire subassemblies.⁷

While the auto firms naturally concentrated on their own assembly operations, both quality and final costs were heavily dependent on the performance of suppliers. Many of them were initially job shops that turned out simple parts. But as more complicated parts were subcontracted, and particularly as volume increased, suppliers in turn had to begin building production lines and expanding operations. The auto firms thus were forced to improve their suppliers' management skills. The assemblers provided guidance in industrial engineering and plant layout, cost accounting, quality con-

⁷ Thus, while initially a subcontractor might have only deburred a casting or chrome-plated a piece of trim supplied by their automotive customer, over time, firms shifted to machining an entire casting or both stamping and plating trim. In addition, firms came to make subassemblies—a lock assembly, a door frame, a dashboard or a gas tank and filler pipe. The Big 3 tended to assemble such subunits in-house.

trol, labor relations, just-in-time production scheduling and (more recently) value analysis. Firms were likewise encouraged to invest in better equipment. On occasion, the assemblers invested in suppliers' equity or guaranteed borrowings (especially Toyota and Nissan in the 1950s and early 1960s). Likewise, engineers might be seconded to work temporarily at suppliers, or staff encouraged to retire early to take a position in management at a supplier.⁸

Why should the Japanese automotive firms have adopted such a hands-on approach to their suppliers? There were several reasons. First, in contrast to the United States, the auto assemblers faced a highly competitive final market; during the course of the 1950s and early 1960s, there was substantial new entry into truck and passenger car production by firms such as (to use American brand names) Mazda, Honda, Subaru and Mitsubishi; the market shares of the early entrants—Toyota, Nissan and Isuzu—all fell. Second, automotive practice clearly lagged behind what was possible. Competition was not limited to styling; to remain viable, the auto firms had to improve quality and lower costs on a continuing basis. Since price competitiveness and quality were highly dependent upon the performance of suppliers, the auto firms had to turn their suppliers into sources of strength. They thus encouraged what were often initially very small firms to change.

RIVALRY AND COOPERATION

Rivalry

In the 1950s and earlier, auto firms in Japan utilized a host of small job shops for simple tasks, sending out unfinished parts for drilling or rough machining in the industrial districts in Tokyo or Nagoya. Pricing was straightforward: firms paid the going rate for the task at hand. As more and more complex tasks were subcontracted, it was no longer possible to observe a market rate. But they could still note what firms in a region were charging for a given manufacturing step, and use that information in the bidding process. Parts firms were required to break parts production down into single steps in their bids, and to provide a price for each step. Naturally, the number of potential parts firms quickly shrank. But the auto firms all produced multiple models and were able to maintain two or three suppliers without having to dual source a part. In addition, product design and technology evolved, and there were always new types of parts to be made. Suppliers thus had to remain competitive to have a shot at new business, and to keep from having others encroach on theirs.

The bidding system fostered technical change. On the one hand, the auto maker could compare costs for a given manufacturing step across firms and across time. It could thus help a supplier pinpoint areas where its costs were out of line. On the other hand, it also helped the auto firm to spot suppliers with unusual skills. Such vendors would be encouraged to help other suppliers—and, in return, would be given favors. Furthermore, technology and productivity improved rapidly, and so the auto companies came to

⁸ For recent examples, see Chapter 6 in U.S. Office of Technology Assessment. *Making Things Better: Competing in Manufacturing*. Washington, U.S. Govt. Print. Off., February 1990.

expect costs to fall each period. Until recently, there was no annual model change, and so a part would remain in production for 2 or more years. Prices, however, were typically set every six months—or rather, lowered in line with expected productivity improvements.

Over time, improvements in existing production machinery and management efficiency became less effective in reducing costs. Thus, the skilled workers and engineers at parts firms and auto companies turned their attention from improving production lines to improving parts design. Beginning in about 1970, the auto assemblers began to push value analysis and value engineering (VA/VE). VA and VE provide industrial engineering methodologies for systematically analyzing design parameters. In particular, VA techniques help staff from across functions (manufacturing, design, purchasing) to work together to redesign parts to function better and for ease of manufacture. Pricing rewards suppliers for their contribution; they keep the benefits from cost reduction for one or two contract periods, after which prices are lowered. Over time, the ability to carry out VA projects not only became a virtual prerequisite for doing business, but it also helped the parts firms increase their role in the overall design process.⁹

Thus, while Japanese car makers do not use cut-throat bidding among suppliers, they are nevertheless able to hold costs in check. The bid process provides detailed information on the manufacturing costs which a competent supplier should be able to achieve. It is expensive and time consuming for an auto firm to find a new supplier and teach it the many firm-specific norms for doing business. Thus, unlike in Detroit, firms which fall behind are not dropped immediately. But because of the relative continuity of orders, loss of an expected piece of work sends a clear signal. Suppliers which do not match their rivals are eventually cut, though it seldom proves necessary. But if worse comes to worst, an auto company will go out to the suppliers of another car maker—and with 11 auto assemblers, there is typically no shortage of candidates.¹⁰

Cooperation

While rivalry is an important element, cooperation has been equally important. The development of norms for pricing parts limited much of the room for dispute. But technical change and the overall relationship are contingent upon cooperation and trust.

The relationship between the Japanese auto firms and their current suppliers has evolved gradually; in many cases, they have been working together for 30 years. Initially, there were stormy periods; both Toyota and Mitsubishi, for instance, called in outside consultants to help them improve supplier relations.¹¹ One mechanism was to create visible interdependence. Since, at first, suppliers were small and demand grew rapidly, their sales were quickly

⁹ One study estimates that suppliers account for half the engineering hours in the design of a new car in Japan. See Clark, Kim, et al. *Product Development in the World Auto Industry. Brookings Papers on Economic Activity, Special Issue on Microeconomics*, v. 3, 1987. p. 729-781.

¹⁰ An auto firm may also seek to install new management, especially when the problem is financial mismanagement and not technology. See Smitka, *Competitive Ties*, Chapter 5.

¹¹ See Smitka, *Competitive Ties*, Chapter 2.

dominated by their prime automotive customer. Giving up non-automotive business—and business with rival auto firms—was a strong signal of commitment. From their end, the auto firms put in place clear make-versus-buy policies. Unlike Detroit, they gave up internal capacity, and hence ceased to be their suppliers' greatest competitors.

Second, with the exception of Honda, all of the Japanese auto firms formed supplier cooperation associations (*kyoryoku kai*). They provided a forum for social events—golf outings and banquets—among senior executives of the auto firms and their suppliers. These helped foster personal ties. They also enhanced reputation. Bringing suppliers together regularly made it difficult to hide unfair behavior; in turn, the auto companies could use these events to advertise occasions when they went out of their way on behalf of a supplier. Finally, joint gatherings provided an opportunity to discuss general directions in the automotive market and changes in policy. This was crucial in planning for capacity and in getting top managers involved with implementing quality control, just-in-time scheduling, and, most recently, value analysis.

Other, more frequent activities involved staff at the working level. Outside consultants and managers and engineers from the auto companies ran training seminars and workshops for supplier association members. Technical subcommittees discussed the latest advances in stamping and welding, and held joint problem-solving sessions. Finally, the purchasing departments of the automotive firms themselves were very active. At least once a week, senior staff talked with the top executives of suppliers; they attempted to meet with them personally at least once or twice a month. Tremendous care was thus taken to maintain constant feedback at every level, from senior executives to design staff.

Thus, while firms remained separate, organization extended beyond the boundaries of the auto firm to include direct suppliers. Both sides made substantial investments in time and effort to build mutual expectations and trust. That was the only basis upon which firms could develop such close cooperation in design and related activities and the willingness to build dedicated production facilities.

Current Opportunities and Future Changes

Forty years of evolution lie behind current practices in automotive subcontracting in Japan. What changes are likely in the future? First, technical change in the automotive industry has not slowed; if anything, it has speeded up. Plastics are now being substituted for sheet metal stampings; digital electronic control systems are growing in importance; ceramics and two-stroke engines are on the horizon. All of these require capabilities from outside the previous supplier base, and, at the same time, threaten to make existing suppliers redundant. Second, the auto industry in Japan proper is approaching maturity. While there is currently a boom in domestic demand within Japan, exports have been declining for two years. As transplant capacity in North America comes on stream, both at the assembler and the parts manufacturer level, demand within Japan will likely fall further. A real recession in the Japan-based industry appears possible, and, with it, the eclipse

of smaller auto firms within Japan.¹² Finally, foreign cars will continue to make inroads into the Japanese market—including cars exported by “transplant” operations back to Japan.¹³

These trends may threaten the overall current cooperative climate among the auto firms and their suppliers; they will inevitably lead to difficulties for individual vendors. However, slow growth of auto production within Japan makes it increasingly hard for the auto firms to attract new subcontractors.¹⁴ Furthermore, at least in some segments, parts firms seem to be running out of room to further increase productivity—and most are finding it hard to recruit additional workers. For labor intensive operations, production overseas will become increasingly attractive; when domestic suppliers run into difficulties, foreign procurement will also become necessary.

The challenges, then, are those that accompany the overall globalization of the automotive industry. For a variety of reasons, Japanese auto makers will increase their use of parts manufactured abroad; they remain dependent, however, on the design capabilities of suppliers within Japan—and to date, few American firms have been willing to compete on that basis. For the moment, it appears that Japanese parts firms will strive to become multinational producers; approximately 200 have begun ventures in the United States, and others have moved into Southeast Asia. It is not yet clear whether they will, on average, be successful.

CONCLUSIONS

The future holds forth a promise of steady change in the automotive industry, both within the United States and in Japan. Auto parts firms clearly need to be able to sell to Japanese vehicle manufacturers to remain viable in the long run. (It is equally important for independent repair shops that they, and not just dealerships, be able to service the growing stock of Japanese vehicles.)¹⁵ Unfortunately, most American auto parts firms are oriented to selling parts, not manufacturing services. Even among those with a strong engineering base, few are willing to make an effort to establish operations overseas. (While the Japan Auto Parts Industry Association established a Chicago office in 1965, only in 1986 did the Motor & Equipment Manufacturers Association set up a Tokyo office.)¹⁶

Nevertheless, there will be opportunities for many firms. The MOSS talks provided an impetus towards greater purchases from American parts firms by Japanese manufacturers; the appreciation of the yen has clearly had a greater impact. (Diamond Star Motors,

¹² Toyota may come to control Daihatsu, while Nissan is strengthening its role at Fuji Heavy Industries (Subaru).

¹³ Total imports are now running over \$4 billion annually, which is small relative to exports but hardly insignificant. Auto parts imports were \$560 million in 1989.

¹⁴ This is particularly an issue for the large auto parts firms, who themselves rely upon an extensive tier of “secondary” subcontractors. Most of those firms are family businesses, and many are now facing succession crises as the current generation of founder/presidents fades from the scene.

¹⁵ See Mullen, Ken. *Gaining Import Market Share. Import Car and Truck*, March 1990; and, Halloran, Jim, and Peter Rigney. *Are You Getting a Slice of Import Work? Motor Service*, February 1990.

¹⁶ This Japan Office is operated in cooperation with the U.S. Department of Commerce.

for example, did its initial planning with an exchange rate of Y200-220. At Y150, it became essential to purchase far more within the United States if the venture was ever to show a profit.) Typically, new suppliers are chosen only with the production of a new vehicle. Even then, given the close relationships Japanese manufacturers expect with their suppliers and limited bilingual staff, a switch to U.S. suppliers cannot be made overnight. Finally, even at the older transplant operations, the design process will continue to be centered in Japan, at least until the end of the decade. This clearly limits the opportunities for the most profitable end of the parts business to firms willing to maintain a presence in Japan. On the other hand, many transplant parts makers are also actively seeking U.S. suppliers. Thus, there is room even for capable small firms to sell to Japanese manufacturers.

Given the opportunity, it is important that U.S. firms are prepared to grasp it. They must be aware that more will be expected of them in Smyrna or Marysville than in Dearborn or Lordstown. They must, therefore, be willing to invest in selling to the Japanese. Trust and a knowledge of how to work together are important. Building this, of course, often requires initially undertaking work that in and of itself is not attractive. It also requires a visible commitment by senior management and not just calls by sales staff. Design and engineering are also central; in many Japanese firms, all purchasers are engineers.

In this, government can play a role, albeit a supporting one. First, it is important to keep up pressure on Japanese automakers to buy more from the United States. In particular, they should be encouraged to develop existing suppliers in a manner reminiscent of the efforts that were extended within Japan 30 years ago. One concrete step in that direction would be to push for the formation by the Japanese of cooperation associations among their U.S. suppliers.

Second, it is also important for the Government to make U.S. firms more aware of what the future holds. Even Detroit is pushing suppliers not only to hold costs down while maintaining quality and timely delivery, but to provide engineering and design input. Here, the greatest need is to help smaller firms strengthen their engineering capabilities. A recent OTA report offers many suggestions to that end.¹⁷

Finally, we must maintain access to foreign markets. The Japanese market, of course, bears watching, but access to Europe may be both more critical and more problematic. However great their problems, the Big 3 are still better than most of the industry in Europe.¹⁸ Both they and the Japanese transplants are likely to have spare capacity for exports. We should not let our current focus on Japan blind us to the long-run importance of other markets around the globe. Nor, of course, should we ignore domestic sources of poor competitiveness—including a decade of high real interest rates and poor education.

¹⁷ OTA, *Making Things Better*

¹⁸ See here the many comparative studies of the MIT International Motor Vehicle Project. E.g., Krafcik, John. Triumph of the Lean Production System. *Sloan Management Review*, Fall 1988. p. 41-52.

JAPAN'S INDUSTRIAL GROUPS, THE *KEIRETSU*

By Dick K. Nanto ¹

CONTENTS

	Page
Summary	72
Introduction	73
Types of Industrial Groups	74
Conglomerate Ties	74
Vertical Ties	79
Distribution <i>Keiretsu</i>	82
The Japan Fair Trade Commission	83
Implications for U.S. Policy	85

SUMMARY

As the Japanese economy has grown, it has developed some fairly distinctive institutions that have only vague parallels in other industrialized nations. Japan's *keiretsu*, or industrial groups, are one such institution. These consist of either vertical or conglomerate groupings of companies that are characterized by long-term association, cross-holdings of stock, extensive business dealings, and, sometimes, sharing of company name. The *keiretsu*, per se, do not violate Japan's antitrust laws, but their activities can.

The conglomerate groups consist of "families" of corporations spanning numerous industries and usually centered on trading companies and/or banks. They include three with origins in the prewar *zaibatsu* (industrial combines)—Mitsubishi, Mitsui, and Sumitomo—and three that are bank centered—Fuyo (Fuji Bank), DKB (Dai-ichi Kangyo Bank), and Sanwa (Sanwa Bank). The extent of stock crossholdings among the conglomerate *keiretsu* ranges from about 14 to 22 percent of total paid-up capital.

U.S. businesses have charged that the conglomerate *keiretsu* prefer to buy from other member companies rather than from outsiders, particularly foreign companies. While such intra-group buying appears to be declining, it still can be quite significant, particularly for capital goods. On average, intra-group purchases account for 10 to 20 percent of the purchases by *keiretsu* firms.

The vertically integrated groups include 39 blue chip manufacturers such as Nippon Steel, Toyota, and Matsushita Electric. These groups resemble the business empires found in all industrialized nations of the world. As with the conglomerate *keiretsu*, vertical *keiretsu* firms hold each other's shares, exchange information,

¹ The author is a Specialist in Industry and Trade, the Congressional Research Service, Library of Congress.

and cooperate in new ventures. Since the relationship is vertical, however, the closest ties are between buyers and suppliers or between maker and distributor in the group.

The Japan Fair Trade Commission enforces the antitrust laws, which resemble those in the United States. It tends, however, to be understaffed and underbudgeted and recently has not been aggressive in prosecuting alleged antitrust violations. During the late 1980s, it found fewer than 10 violations per year.

American businesses can work around Japan's *keiretsu* system by pursuing several strategies. The system also has been one of the targets of the Structural Impediments Initiative talks between the United States and Japan in 1989-90. Japan has promised to strengthen its antitrust laws and enforcement, but given the support for the *keiretsu* by Japan's business, government, and political elite, the *keiretsu* are not likely to disappear soon.

INTRODUCTION

As the Japanese economy has grown, it has developed some fairly distinctive institutions that have only vague parallels in other industrialized nations. Japan's *keiretsu*,² or industrial groups, are one such institution. These consist of either vertical or conglomerate groupings of companies that are characterized by long-term association, cross-holdings of stock, extensive business dealings, and, sometimes, sharing of company name. The *keiretsu*, per se, do not violate Japan's antitrust laws, but their activities can.

The *keiretsu* have been one of the targets of the Structural Impediments Initiative talks between the United States and Japan in 1989-90. The United States claims that the close links among Japanese corporations can "promote preferential group trade, negatively affect foreign direct investment in Japan, and give rise to anti-competitive business practices."³ The United States also claims that the industrial groups can hinder market access of U.S. firms and allow member companies to generate profits in protected markets at home, thereby enabling them to shave profit margins and gain market share abroad. The long-term, buyer-supplier relationships also can even lock out foreign suppliers with superior products, while the supplier-distributor links can prevent retailers from carrying competing products and can hinder price competition. The cross-holdings of shares also can impede foreign acquisitions of Japanese companies and make trading in stocks of certain companies thin.

Many Japanese see the *keiretsu* as a natural outgrowth of their unique economic development and one of their greatest strengths in international competition. Along with the elite government ministries, the core companies of the *keiretsu* are the first choice for employment among Japan's top graduates each year. Japanese also

² The *keiretsu* (kay-ret-sue) also are referred to as *zaibatsu* (financial cliques). *Zaibatsu*, however, has a negative connotation and usually refers to Japan's prewar industrial combines characterized by holding companies. At the end of World War II, Japan's four largest *zaibatsu* controlled about a quarter of the paid-in capital of Japan's incorporated business. (See: Hadley, Eleanor M. *Antitrust in Japan*. Princeton, Princeton University Press, 1970.)

³ Comments of the U.S. Delegation on the Interim Report by the Japanese Delegation. Appended to *Japan-U.S. Structural Impediments Initiative, Interim Report by the Japanese Delegation*. April 5, 1990. Released by the White House, Office of the Press Secretary, April 5, 1990.

point out that Germany has similar business organizations. Hence, it is the United States, not Japan, that is out of step with the rest of the world.⁴

In this paper, we first examine the types of *keiretsu* organization, discuss briefly Japan's Fair Trade Commission, and outline some implications for the United States.

TYPES OF INDUSTRIAL GROUPS

Japan's *keiretsu* can be classified into two types: conglomerate⁵ and vertical. The conglomerate groups comprise firms in a variety of business activities and usually are centered around trading companies and banks. Firms in a vertical grouping will be centered on a major manufacturer and can include both suppliers and sellers within a specific sector. Vertical groups also can depend on the conglomerate group members for particular functions, such as procurement, financing, and distribution of finished products.

As shown in the following figure, the conglomerate groups include three with origins in the prewar *zaibatsu* (industrial combines)—Mitsubishi, Mitsui, and Sumitomo—and three that are bank centered—Fuyo (Fuji Bank), DKB (Dai-ichi Kangyo Bank), and Sanwa (Sanwa Bank). For example, the Mitsubishi Group, a descendent from a prewar *zaibatsu*, is centered on the Mitsubishi Corporation (a trading company), Mitsubishi Bank, and Mitsubishi Heavy Industries. The affiliated Mitsubishi companies include 35 firms in insurance, construction, food, textiles, paper, chemicals, petroleum, glass, cement, steel, nonferrous metals, machinery, electronics, transportation machinery, optical instruments, shipping, real estate, and warehousing.⁶ As a group, Mitsubishi's sales are about twice the level of those of General Motors, the world's largest industrial corporation.

The vertically integrated groups include 39 blue chip manufacturers such as Nippon Steel, Toyota, and Matsushita Electric. These groups resemble the business empires found in all industrialized nations of the world.

CONGLOMERATE TIES

The six major *keiretsu* organized into conglomerates use a variety of methods to tie their enterprises together. These include:

- crossholdings of shares
- presidential councils
- intra-group financing by a common bank
- mutual appointments of officers
- use of trading companies for marketing and organizing projects
- joint investments in new industries.

The cross-holdings of shares in Japan stem from three factors. First, when the U.S. occupation authorities after World War II liquidated the Japanese holding companies and forced them to sell

⁴ Russell, David. America's Hollow Victory. *Business Tokyo*, v. 4, June 1990, p. 34.

⁵ Some authors refer to the conglomerate *keiretsu* as horizontal *keiretsu*. Horizontal integration, however, usually refers to firms producing similar products, e.g., Chrysler's acquisition of American Motors.

⁶ Dodwell Marketing Consultants. *Industrial Groupings in Japan*. 8th Ed. 1988/89. Tokyo, Dodwell, 1988. p. 47ff.

Figure 1.

JAPAN'S INDUSTRIAL GROUPS THE KEIRETSU

Conglomerate Groups

Six Major Groups

Zaibatsu
Origin

Mitsubishi
Mitsui

Sumitomo

Bank Centered Groups

Fuyo
DKB
Sanwa

Tokai
IBJ

Vertical Groups

Total of 39 including:

Nippon Steel

Hitachi

Nissan

Toyota

Matsushita

Toshiba

NEC

NTT

Seibu Saison

Nippon Oil

Mitsubishi Electric

Note: Prepared by CRS

their stock, the major buyers with funds to purchase them were other companies. Second, as Japan liberalized its capital markets in the 1960s and 1970s, companies began to fear hostile takeovers from abroad. They protected themselves by having friendly companies serve as stable stockholders. Third, Japan's antimonopoly law proscribes holding companies. Hence, the cross-shareholding substitutes for vertical shareholding possible through holding company structures prevalent in other countries.

The extent of stock crossholdings among the conglomerate *keiretsu* ranges from about 14 to 22 percent of total paid-up capital. The purposes of the mutual holdings of stock include cementing relationships and precluding hostile takeover attempts. The holdings of stock are rarely sold.⁷ The mutual share holdings also reduce pressures on companies to increase short-term profits.

In the bank-centered *keiretsu*, the holding of shares by the bank in the group companies signifies a relationship that also is buttressed by other means. The companies exchange information with the bank and usually deposit large amounts of cash there just to maintain satisfactory relationships. They also, however, make such deposits with other banks, just to ensure that ample credit will be available during periods of tight money and that no single bank will exert undue influence on the corporation.⁸

Given the debate in the United States over the cost of capital for businesses, one question is whether or not the members of a bank-centered *keiretsu* are able to gain access to loans under preferential conditions. Even though interest rates might be the same for inside and outside borrowers with similar credit ratings, member firms probably have received preferential access to available funds during credit crunches. They also can receive favorable terms of repayment and extensions, if necessary. The bank may step in and provide management to a firm that is facing bankruptcy. At one time, *zaibatsu* banks were referred to as "organ" banks or an integral part of the organization.⁹ The current surplus of capital in Japan and the ready availability of other sources of finance, however, indicates that the importance of this "captive" bank is diminishing. As long as cheaper sources of capital exist in world financial markets, firms will continue to diversify their borrowing away from their primary bank.

Under the postwar dissolution of the *zaibatsu* and subsequent laws, the *keiretsu* banks were forced to diversify their lending activities. Likewise, borrowing firms began to limit their loans from their primary banks to about 30 percent. Even bank-centered *keiretsu* companies, therefore, borrow from several other banks. However, ties still are strong. In the case of Nihon Dennetsu, a member of the Mitsui *keiretsu*, it had been obliged to consult with Mitsui prior to borrowing money outside the group.¹⁰

⁷ Since most companies carry these stocks at their historical value, many Japanese companies have balance sheets in which net worth is considered to be understated.

⁸ Abegglen, James C., and George Stalk, Jr. *Kaisha, The Japanese Corporation*. New York, Basic Books, 1985. p. 165-166.

⁹ Hadley, *Antitrust in Japan*, p. 157.

¹⁰ Nihon Dennetsu Flies Free of Parent Mitsui. *The Japan Economic Journal*, June 2, 1990. p. 21.

The presidential councils comprise the presidents of the leading companies of the group, who meet periodically (usually monthly) to discuss matters of mutual interest. The importance of these councils appears to be diminishing, since in the 1960s such councils met weekly. While the councils claim not to be policymaking bodies for the group (as were the prewar holding companies), they do discuss such topics as economic and financial conditions, promising business activities, research and development, intra-group trademarks, and labor problems. They also can decide on joint investments in new industries, political contributions, public relations, rehabilitation of troubled member companies, and key personnel appointments.¹¹

During the recent merger of Mitsubishi Metal and Mitsubishi Mining and Cement, Takeshi Nagano, President of Mitsubishi Metal, said that the merger was not discussed in the Presidential Council for fear of allegations of insider trading. Other *keiretsu* members were informed of the decision personally after the decision had been made.¹²

At the center of several conglomerate *keiretsu* are general trading companies.¹³ These huge companies operate diverse businesses on their own while providing many services to member firms. They procure raw materials, distribute products, finance some activities, organize diverse projects, and gather and disseminate intelligence. Since trading companies are involved in both importing and exporting, they can absorb considerable foreign exchange risk for the group. The trading company usually is considered to be the lead company or shares leadership with a bank or other major company in the group. Mitsui & Co. (the trading company), for example, shares leadership with Mitsui Bank, and Mitsui Real Estate Development in their *keiretsu*.

Trading companies, moreover, engage in transactions not only for Japanese firms, but also among buyers and sellers in third countries. Such transactions might include, for example, arranging for a sale of a U.S. chemical plant to the Soviet Union or importing Romanian urea into Bangladesh.¹⁴ In the early 1980s, Japanese trading companies handled as much as 10 percent of all U.S. exports.¹⁵ In 1987, the nine leading trading companies reported that 17 percent of their sales were exports from Japan, 19 percent were imports, 20 percent were third-country sales, and 44 percent were domestic sales.¹⁶

Japan's general trading companies enter into a variety of transactions. Each company will handle as many as 20,000 different products with numerous suppliers. This enables them to arrange multi-product deals that encompass many facets of a project. An example would be the export of a turnkey petrochemical plant to Singapore that required equipment, technology, and consulting

¹¹ Dodwell, *Industrial Groupings*, p. 9.

¹² Thompson, Robert. Deriding the Conspiracy Theory. *Financial Times*, May 22, 1990. p. 24.

¹³ General trading companies are referred to as *Sogo Shosha* in Japanese.

¹⁴ Young, Alexander K. *The Sogo Shosha: Japan's Multinational Trading Companies*. Boulder, Colorado, Westview Press, 1979. p. 9-10.

¹⁵ Yoshino, M.Y., and Thomas B. Lifson. *The Invisible Link, Japan's Sogo Shosha and the Organization of Trade*. Cambridge, Mass., The MIT Press, 1986. p. 2.

¹⁶ Nihon Keizai Shimbun. *Japan Economic Almanac, 1988*. Tokyo, Nihon Keizai Shimbun, 1988. p. 226.

services of many different firms.¹⁷ About half of the sales of the nine leading trading companies were in metals and machinery. Other major categories were fuels, chemical products, foodstuffs, and textiles. In 1987, the top nine trading companies in Japan handled 74 percent of all Japan's imports, 42 percent of its exports, and carried even greater shares of certain products, such as steel and grain.¹⁸

General trading companies wield considerable market power. Through control of key ports and shipping facilities, they can exert pressure on member companies in their buying and selling decisions, and can hinder U.S. exports. Since such a high proportion of Japan's imports are concentrated in the hands of a few firms, moreover, the government is better able to exert "administrative guidance" to dampen imports of particular goods. This has happened in the past in steel and textiles.¹⁹ Most of the imports handled by trading companies, however, are bulk commodities. Hence, they are less influential in either promoting or hindering imports of manufactured goods.

In terms of new business ventures, the *keiretsu* often form committees to study promising areas. Mitsubishi, for example, used a study committee to plan how the group would move more rapidly into advanced communications. Mitsui coordinated member company efforts in new media research, and Sumitomo in commercial uses of space.²⁰

U.S. businesses have charged that the conglomerate *keiretsu* prefer to buy from other member companies rather than from outsiders, particularly foreign companies. While such intra-group buying appears to be declining, it still can be quite significant, particularly for capital goods. On average, intra-group purchases account for 10 to 20 percent of the purchases by *keiretsu* firms. In 1981, for the six largest firms in the distribution sector, the share of purchases from fellow *keiretsu* firms amounted to 3.1 percent for textiles and clothing, 0.5 percent for agricultural products, 9.9 percent for minerals, metal products, and chemicals, and 21.1 percent for machinery and equipment.²¹

In a 1985 survey of Japan's machinery manufacturers by Japan's Ministry of International Trade and Industry, 95.1 percent of the respondents said they would pick the superior good whether in-group or imported, while 2.0 percent favored in-group goods even if imports were superior, and 2.9 percent said they favor imports, even if in-group goods were superior. (This last group of respondents were all affiliates of foreign companies.)²²

The three major U.S. complaints about Japanese conglomerate *keiretsu* are their intra-group trading, control over markets, and cross-shareholding which makes hostile takeovers extremely difficult. The conglomerate's trading companies, however, have been used by some exporters to facilitate exports to Japan. The conglom-

¹⁷ Young, *Sogo Shosha*, p. 4-9.

¹⁸ Keizai Koho Center. *Japan 1990*. Tokyo, Keizai Koho Center, 1989. p. 46.

¹⁹ Lincoln, Edward J. *Japan's Unequal Trade*. Washington, Brookings Institution, 1990. p. 88.

²⁰ Prestowitz, Clyde V., Jr. *Trading Places*. New York, Basic Books, 1988. p. 159-160.

²¹ Batzer, Erich, and Helmut Laumer. *Marketing Strategies and Distribution Channels for Foreign Companies in Japan*. Boulder, Westview Press, 1989. p. 111.

²² Keizai Koho Center. *Trading with Japan*. Tokyo, Keizai Koho Center, 1985. p. 22.

erates no doubt will continue to grow, but future growth will likely come at the expense of the traditional "family" ties. Individual companies in the conglomerates are likely to become more and more independent in the future as they develop their own marketing mechanisms and establish links with firms in other countries and industries.

Two major trends are developing in industries in the three developed markets of the world: North America, Europe, and Japan. The first trend is toward consortia of firms in a specific industry to link together to market products simultaneously in all three markets. General Motors, for example, has ties with Isuzu and Suzuki in Japan and its subsidiaries in Europe.

The second major trend is for corporations to establish networks by which they link with other firms to share technology, jointly develop products, or cover markets. The recent agreement between Mitsubishi and Daimler-Benz conglomerates to cooperate over a wide range of business activities is one such example. The tie-up is expected to spawn joint projects in automobiles, electrical machinery, aerospace technology, and corporate telecommunications networks.²³ Hence, even the largest and most centralized of the conglomerate *keiretsu* is finding it necessary to network with the largest German conglomerate in order to remain competitive in world markets.

As long as markets continue to expand, intra-group trading as a percent of total trade will likely diminish. During a severe recession, however, conglomerate *keiretsu* could implode upon each other. They would likely support fellow conglomerate members in adverse business conditions.

The cross-shareholdings of stock also could diminish. Given the heights reached by the Tokyo stock exchange, some companies are questioning the value of keeping a portfolio with so many shares of other companies, when the value of those stocks has risen so much and those funds could be used for other purposes.

VERTICAL TIES

In addition to the *keiretsu* integrated into conglomerates discussed above, numerous vertically integrated groups exist in Japan. Some of these vertically integrated groups also maintain horizontal ties. These independent industrial groups resemble the corporate behemoths elsewhere in the industrialized world.

The groups usually are headed by one or more large industrial concerns and are commonly concentrated in one or a few industries. Normally, the affiliated firms maintain vertical buyer-supplier relationships, although ties with horizontal firms also are common. The Nissan Motor Corporation, for example, has links with Fuji Heavy Industries (makers of Subaru automobiles), but its primary relationships are with its twenty-two upstream suppliers of parts and downstream distribution-related companies, such as Nissan Motor Sales, Nissan Auto Transport, and Nissan Motorist Service. Hence, the relationships go both down the supply chain

²³ Smith, Charles. Two's Company. *Far Eastern Economic Review*, May 24, 1990. M'bishi, Daimler-Benz Mull 7 Joint Projects. *Mainichi Daily News*, May 24, 1990.

from manufacturer to raw material provider or component maker and up the distribution system through the wholesaler and retailer.

There are no strict criteria for distinguishing a vertically integrated *keiretsu* from other large vertical groupings. Dodwell Consultants lists as *keiretsu* 39 vertically integrated groups whose sales exceeded one trillion yen in 1987. The list includes companies whose brand names boast world-wide recognition: Toyota, Nissan, Honda, Mazda, Sony, Mitsubishi Electric, Hitachi, Toshiba, NEC, Nippon Steel, NTT, and Sharp. Some of the vertically integrated groups also are members of conglomerate *keiretsu*.²⁴

As with the conglomerate *keiretsu*, vertical *keiretsu* firms hold each other's shares, exchange information, and cooperate in new ventures. Since the relationship is vertical, however, the closest ties are between buyers and suppliers or between maker and distributor in the group. Under Toyota Motor, for example, stand 22 firms making auto parts or assembling sister products (such as looms). These include Toyota Auto Body, Toyoda Automatic Loom Works, Aichi Steel Works, and Koito Manufacturing. Toyota also owns dealerships, an insurance company, and three ventures in non-automotive fields. This is similar to General Motors or Ford.

The distinguishing feature of the vertical links in Japan (and one that U.S. firms also are adopting) is the close relationship between the parent company and its suppliers. Such links tend to pervade all Japanese businesses, but are the strongest within the *keiretsu*. Relationships that initially are forged by the mutual buying of each other's stock are expected to continue for a long time. The supplier participates actively with the final manufacturer in designing products, upgrading technology and manufacturing processes, and implementing quality control. The buyer usually is allowed to examine the supplier's books, and cost savings generally are passed on to the final manufacturer to be incorporated into the retail price of the product. The supplier is an integral link in the competitive strategy of a Japanese manufacturer.

The close links also substitute for legal work in Japan. Supplier-buyer contracts often do not contain the detailed contingency clauses common in American contracts. If a problem arises, the relationship of mutual trust allows the companies to work out a satisfactory solution. The long-term nature of the relationship, moreover, means that if one side has to take a loss because of unforeseen difficulties, it may be favored the next time a problem arises. Hence, equity can be attained.

The traditional Japanese system of permanent employment reinforces the vertical *keiretsu* system. Although permanent employment covers only the core employees of a company and only about a third of the total work force, it usually is standard in the *keiretsu* companies. Under permanent employment, new hires are kept on the job until they retire (at age 55 to 60), and their salary rises with their years of service.

The problem with permanent employment is that every company has an organizational structure shaped like a pyramid. Every

²⁴ Dodwell Consultants, *Industrial Groupings*, p. 141.

person hired cannot be promoted continually. Not enough jobs exist in management. The company can solve the problem by growing fast enough to create new managerial jobs as the permanent employees rise in the organization, but eventually every company runs out of positions, even for highly capable individuals.

It is in solving this employment problem that subsidiaries and suppliers in the *keiretsu* play a critical role. The subsidiaries and suppliers usually are required to accept retiring (voluntary or forced) employees from the lead manufacturer. This also helps the supplier, since the retiree usually turns around and deals with people in the parent company whom he formerly supervised. Such personnel transfers add to the difficulty of an outsider firm to break into a *keiretsu* buyer-supplier relationship.

Japanese manufacturers also do not change suppliers without first consulting existing ones. If a competing supplier comes in with a lower price or new product, the existing supplier often is given a chance to match it. U.S. automotive parts suppliers, in particular, have complained that they cannot even get specifications for parts from Japanese automakers. They are told that they have to enter the process earlier. The existing suppliers have already been involved in developing those specifications and manufacturing processes.

A supplier also will supply parts under a contract that will have provisions for falling prices, zero defects, and just-in-time delivery. The philosophy of Japanese contracting is that as a company moves out on the experience curve for a given product, the price of that product should fall. Also, manufacturers often require their suppliers to insure that their products are 100 percent defect-free. Such parts can be delivered directly to the manufacturer's assembly line and not reinspected or stored. Parts also must be delivered as they are needed on the assembly line. This just-in-time delivery means that the supplier may be required to make several small-lot deliveries at specific times each day.

Such exacting requirements on the supplier mean that the buyer and supplier must have a relationship that goes beyond that specified in the contract. There must be trust, loyalty, a mode of operation that allows for problems to be worked out in a mutually satisfactory manner, enough confidence in the relationship that the supplier is willing to invest in new technology, and a sharing of production and cost data that normally might be considered proprietary. Such relationships are difficult to cultivate without closer ties than those developed through arms-length transactions. Hence, in Japan vertical *keiretsu* have developed.

The complaints of outsiders, not just foreigners but including Japanese companies who are not members of the privileged few suppliers, is that breaking into existing buyer-supplier relationships is nearly impossible. The best chance for an outside company to break into the existing buyer-supplier chain is with a unique product. Even a unique component, however, will usually be incorporated into a new, not existing, product. The buying firm will maintain its links with the existing suppliers.²⁵ Rarely can a new firm break in on the basis of price alone.

²⁵ Batzer and Laumer, *Marketing Strategies*, p. 103.

The size of the *keiretsu*, moreover, makes it easier for the lead companies to establish cartels and divide up markets or exclude outsiders.

Distribution Keiretsu

Vertical *keiretsu* also extend from the manufacturer through distributors and even to retailers. Much like automobile dealership franchises, some Japanese makers maintain exclusive wholesale and retail networks. These are common in automobiles, electrical appliances, cosmetics, confectioneries, and musical instruments. Discipline is maintained in the distribution system through providing capital and rebates. Capital is usually supplied by purchasing large blocks of the wholesaler's stock, holding promissory notes while goods are moved, and other forms of trade credit.²⁶ Rebates also are provided both to increase profit margins and as sales promotions.²⁷

Matsushita Electric Industrial Company, the maker of National and Panasonic brand name products, for example, maintains its 25 percent share of Japan's domestic refrigerator market through 24,000 "National" shops which sell its brand-name products. More than half of Matsushita's home appliance products are still sold through such shops. Similarly, 11,000 shops belong to the Toshiba *keiretsu*, 9,000 to Hitachi, 5,000 each for Sanyo and Sharp, and 3,000 for Sony.²⁸

In 1990, Matsushita indicated that in response to U.S. pressures it intends to overhaul its *keiretsu* distribution system for home electrical appliances. The company will abolish special rebates for companies that sell a large volume of its products and revise the system by which retailers could make a deposit with Matsushita worth 1 percent of their transactions with the company and receive returns at the same rate as Matsushita stocks (about 20 percent currently). Matsushita also indicated that it would revise its use of officially suggested retail prices.²⁹

Japan's antimonopoly law has provisions aimed at most monopoly practices in distributing products from the manufacturer to the customer. Resale price maintenance, exclusive dealing stipulations, and customer restrictions seem to be disallowed in the law, but the sanctions are so weak that the law appears to have little effect. When successful antitrust proceedings are brought against a company, the result is usually a cease and desist order rather than a penalty.³⁰

In Japan, vertical restraints generally are treated as unfair business practices rather than as private monopolizations. In 1982, Japan's Fair Trade Commission (JFTC) designated practices it con-

²⁶ Yamamura, Kozo, and Jan Vandenberg. Japan's Rapid-Growth Policy on Trial: The Television Case. In: Saxonhouse, Gary R., and Kozo Yamamura, eds. *Law and Trade Issues of the Japanese Economy*. Seattle, University of Washington Press, 1986, p. 243-244.

²⁷ Dodwell Marketing Consultants. *Retail Distribution in Japan*. Tokyo, Dodwell Marketing Consultants, 1988, p. 80.

²⁸ Sekiguchi, Waichi. Electronics Firms Aim to Keep Keiretsu. *The Japan Economic Journal*, June 2, 1990, p. 3.

²⁹ Matsushita to Overhaul 'Keiretsu' Practices. Nikkei Top Articles by *Nihon Keizai Shimbun*, April 22, 1990.

³⁰ Flath, David. Vertical Restraints in Japan. *Japan and the World Economy*, v. 1, 1989, p. 187.

sidered to be unfair. These included unjust exclusive dealing, unjust resale price maintenance, and unjust customer relations. Actual examples from the files of the JFTC include firms that stipulated minimum retail prices or maximum wholesale prices, prohibited firms from upsetting a discriminatory price structure, assigned exclusive territories, or required salesmen to deal exclusively in their products. Each of these cases can be explained by standard economic arguments common in the United States and other industrialized countries and not unique to Japanese culture, custom or tradition.³¹

One allegation made by several U.S. competitors is that Japan's *keiretsu* distribution system allows Japanese companies to generate large profits at home and then use those profits to cover their fixed costs and to charge prices close to variable costs or even less than variable cost in export markets. In theory, such behavior can lead to the dumping of products abroad, particularly when excess production capacity exists in Japan.³²

The philosophy of many Japanese firms is that a loss can be taken in developing new markets if the potential for long-term profits is high enough. Toyota, for example, took years before it began to turn a profit in the U.S. market. The *keiretsu* distribution system in Japan tends to support such market behavior abroad.

Any change in Japan's vertical *keiretsu* is likely to be marginal and in response to economic as well as political pressures. As Japan's distribution system is modernized, however, the single brand stores are likely to lose business to the large-scale marketers. In the case of cameras, the discounters, such as Yodobashi Camera in Tokyo, sell in such volume that Japan's camera makers have been forced to deal with them. In the process, the camera makers have lost much of their control over prices. The loosening of import restrictions, moreover, means that Japanese firms will no longer be able to charge higher prices domestically, thereby, fattening their profit margins at home in order to shave them abroad.

THE JAPAN FAIR TRADE COMMISSION

The Japan Fair Trade Commission (JFTC) was created by the U.S. Occupation authorities in 1947 (based on the American model) and serves as Japan's watchdog agency dealing with antitrust laws. Under the antimonopoly law established at the same time, and as elaborated in a 1953 notification by the JFTC, the six categories of business practices considered to be unfair include boycotts and refusals to deal; discrimination in prices, terms, or access to concerted activities; unreasonably high or low prices; exclusive dealing; vertical restrictive agreements including tying and (generally) resale price maintenance, and abuse of a dominant bargaining position.³³

The JFTC uses summary investigation procedures when a violation is not substantial or is limited in scope. In formal investiga-

³¹ Flath, *Vertical Restraints*, p. 202.

³² Most recent antidumping cases against Japan deal with industrial materials or products not sold in Japan through a *keiretsu* distribution system.

³³ Caves, Richard, and Masu Uekusa. *Industrial Organization*. In: Patrick, Hugh, and Henry Rosovsky. *Asia's New Giant*. Washington, The Brookings Institution, 1976. p. 485-486.

tions with sufficient evidence of a violation, the JFTC will take formal action. Where the evidence is insufficient, the commission usually issues a warning to eliminate the activities in question. Only in exceptional cases will the JFTC file a criminal accusation against a company; the most recent example was against a 1974 oil cartel.³⁴

In total, the JFTC handles as many as 500 cases per year. Not all, of course, involve the *keiretsu*. In 1975 and in 1976, it found more than 30 violations of the antimonopoly law (mostly price-fixing agreements). After that, however, violations averaged only about 11 per year, and, in 1986 and 1987, dropped to about 5 per year.

The 1977 revision of Japan's Antimonopoly Law allows the JFTC to assess surcharges against violators. The surcharges are based on the sales volume by the firms during the period of violation. The following table shows how the surcharges have varied.³⁵

Table 1. SURCHARGES FOR ILLEGAL CARTELS IN JAPAN, 1981-1987

Japanese Fiscal Year	Number of Cases	No. of Firms and Individuals	Amount (Y millions)
1981.....	6	149	Y3,759.5
1982.....	8	170	737.4
1983.....	10	92	1,466.0
1984.....	2	5	353.1
1985.....	4	32	153.7
1986.....	4	32	275.5
1987.....	6	54	147.6
Total.....	58	877	Y9,797.9

Source: Japan Fair Trade Commission

In the mid-1980s, therefore, both the number of violations and the amount of the surcharges declined. Whether this was because of a greater awareness of the antitrust guidelines by businesses or because of more lax enforcement is not possible to determine.

Since then, however, the JFTC seems to have become more aggressive. In December 1988, it levied a surcharge of 290 million yen (\$2.04 million) on 70 firms for conspiring to fix bids for projects at the U.S. Navy base at Yokosuka. It also punished construction companies for similar activities at the Osaka airport project, and issued a written warning to 36 firms suspected of forming a cartel to import beef.³⁶

The contention of the United States is that the JFTC is under-budgeted, understaffed, and lacks enough clout to prevent abuses of monopoly power. The JFTC's staff and budget are about one-quarter the level of the combined U.S. antimonopoly force. The JFTC is one of the weakest agencies in the Japanese government. The chairman of its five-man commission usually comes from the Minis-

³⁴ Hiroshi, Iyori. *Antitrust and Industrial Policy in Japan: Competition and Cooperation*. In: Saxonhouse and Yamamura, *Law and Trade Issues of the Japanese Economy*, p. 65-66.

³⁵ Ostrom, Douglas. *Japan's Competition Policies*. *JEI Report*, no. 20A, May 19, 1989, p. 9.

³⁶ Holloway, Nigel. *Freeing the Watchdog*. *Far Eastern Economic Review*, October 19, 1989, p. 48.

try of Finance, and MITI always has a representative there. Neither agency is a strong supporter of antitrust enforcement.

The United States also has pointed out the disincentives for private companies or groups to file antitrust suits in Japan.³⁷ Such suits are permitted, but they are rare and financial settlements are modest. During the oil crisis in 1973-74, for example, two consumer groups alleged that the oil companies were overcharging them. They eventually settled for the sums of \$985 and \$577 after the cases reached the Tokyo High Court. In another case, the consumers rejected a proposed settlement of \$1,808, but went on to lose the case on appeal to the Supreme Court.³⁸

In the Interim Report by the Japanese Delegation to the Japan-U.S. Structural Impediments Initiative (April 5, 1990), the Japanese government indicated that it intended to strengthen the JFTC and have it enforce the antimonopoly law more strictly. The JFTC is to monitor the transactions among *keiretsu* firms to determine whether or not they are being conducted in a manner that impedes fair competition.

The JFTC, with the assistance of an advisory group, is also to establish guidelines to insure that transactions among companies in *keiretsu* groups do not discriminate against foreign firms. Furthermore, the JFTC is to publish biennial analyses of the *keiretsu* groups including supplier-customer transactions, financing arrangements, personal ties, and the role of trading companies in the groups.

The issue of the *keiretsu* has also reached the U.S. operations of Japanese companies. The U.S. Federal Trade Commission has begun a probe of Japanese companies and their parts suppliers operating in the United States. The investigation is to determine whether or not their propensity to buy components from suppliers in which they hold a financial interest illegally discriminates against competing parts makers.³⁹

IMPLICATIONS FOR U.S. POLICY

The *keiretsu* are a fact of life in Japan and are not likely to change significantly in the near future. Over time, however, all such arrangements tend to weaken because member companies grow so large that company policies become difficult to enforce, subsidiaries become financially independent, and the product lines of member firms become so complicated that the parent company can no longer provide meaningful guidance for them. Obviously, however, U.S. firms attempting to enter the Japanese market cannot wait for this process to develop.

To say that Japan's *keiretsu* exist is not to say that competition in Japan is bridled. Among the *keiretsu* companies, competition is ferocious. Companies compete, however, more in product quality and new features, rather than just price. The ferocity of this competition is attested to by the speed of technological innovation and the rapid decline in the cost of production in Japan's manufacturing sector. This makes the *keiretsu* different from government-sanc-

³⁷ Anti-monopoly Law Revision Urged. *The Japan Economic Journal*, February 17, 1990. p. 12.

³⁸ Ostrom, Competition Policies, p. 10.

³⁹ Trade. *Business Week*, June 4, 1990. p. 71.

tioned monopolies or other such uncompetitive (and anticompetitive) entities in other nations. Since competition is so fierce, Japan's *keiretsu* companies tend to keep up with world developments in technology, manufacturing processes, and product development.

On a practical level, U.S. firms assessing potential customers in Japan should first look at existing *keiretsu* links. They should examine the number of employees received by suppliers from the buying company and the positions they occupy, the crossholdings of stock, and the nature of the buyer-supplier relationships already in place. Once the U.S. firm has gauged the extent of the *keiretsu* ties, it has several options.

First, the U.S. firm can focus on those buyers without *keiretsu* ties. These usually will be smaller firms often located outside of Tokyo or they may be entrepreneurial firms such as Sony or Honda. While the entrepreneurial firms may be vertical *keiretsu* themselves, they often are more open to outside products because they have had to battle the entrenched conglomerate *keiretsu* from their inception. Taiwanese exporters pursued this strategy. They began by establishing contacts in second-tier cities such as Osaka and Fukuoka. There, they found companies whose major problem also was trying to compete with the *keiretsu* firms and who were searching for new products that might give them an advantage.

Second, the U.S. firm can attempt to link up with a supplier who is already a member of the *keiretsu* or its supply network. U.S. companies such as Borg Warner and Honeywell have followed this strategy by forming joint ventures or licensing local production. This avenue can achieve short-term results, but it has the long-term danger that the Japanese partner could adopt the technology and improve upon the U.S. firm's product so much that it becomes independent and takes over the market by itself.⁴⁰

A typical joint venture might result in 20 Japanese engineers sent to the U.S. parent company to learn about the American technology and one American engineer sent to Tokyo to help the Japanese partner adopt it. Nowhere in the process are American engineers sent to Tokyo to learn about Japanese technology.

In terms of distribution, a U.S. firm might link up with either a similar company or one in a different sector but servicing the same clientele. Sales of Tiffany products by Mitsukoshi department stores, for example, reached \$26 million by 1988.⁴¹ Honda is starting to distribute Chrysler Jeeps in Japan, and Diner's Club worked with Japan Travel Bureau as its partner at an early stage.

Third, the U.S. firm might establish a relationship with some other part of the buying company. One method is for the American company's engineers to provide the engineering staff in the *keiretsu* company with technical help on an informal basis. This bypasses the purchasing department entirely. After the Japanese engineers begin to feel indebted to the U.S. company's engineers and see how the U.S. product might solve their problems, the U.S. company's engineers then suggest that the Japanese engineers ask

⁴⁰ See, for example: Reich, Robert B., and Eric D. Mankin. Joint Ventures with Japan Give Away our Future. *Harvard Business Review*, v. 64, March-April 1986. p. 78-86.

⁴¹ Mitsukoshi Increases Share in Tiffany. *Business Tokyo*, v. 3, November 1989. p. 52.

their purchasing people to buy the U.S. product. This is a tactic that has been used successfully by European machine tool makers.⁴²

A similar strategy is to begin working with the potential buyer long before the buying decisions are made. In May 1990, for example, the Nippon Telegraph and Telephone Corporation announced that AT&T International, Motorola, and Ericsson of Sweden had been selected, along with seven Japanese companies, to develop its next generation mobile-telephone system. When the actual purchases are made, these foreign companies should be able to compete equally with Japanese companies because they will have been in the market from the beginning. Similar opportunities are available for U.S. semiconductor suppliers for high-definition TV.⁴³

Fourth, if the U.S. firm has deep pockets, it can establish its own subsidiaries and distribution system and confront the *keiretsu* on their home turf. This has been the route followed by companies such as IBM and Coca-Cola.

If U.S. firms perceive that the *keiretsu* system is working to block their sales in Japan, pressures can be brought to bear on the system by the U.S. Government. One of the problems, however, is that U.S. firms with complaints often are afraid to bring them to light for fear of jeopardizing their existing market in Japan. Occasionally egregious cases, such as soda ash⁴⁴ or amorphous metals, will come to light, but alleged violations often go unreported if the risks of complaining are greater than the probable gains.

The United States has not argued that long-term, *keiretsu*-type relationships that make economic sense are wrong. Indeed, relationships based on trust that reduce the need for legal work enhance the efficiency of producers. The existence of *keiretsu*, per se, is not the problem. The problem is that the close coordination among group members facilitates violations of antitrust laws and dealings that can exclude U.S. exporters.

In terms of reciprocity and equity, moreover, the ease with which Japanese companies can buy into U.S. firms compared with the difficulty of U.S. firms to do likewise in Japan offends the sense of fairness of many Americans.

U.S. pressures on the system through the SII and other fora are likely to speed up the process of liberalization and can restore some of the power of the JFTC to pursue abuses among *keiretsu* companies. The U.S. demands that the JFTC be strengthened are also supported by the JFTC. During the SII talks, the U.S. Embassy in Japan kept in close contact with the JFTC to insure that the U.S. demands were reasonable. After the SII talks are complete, oversight and monitoring will be important.

The fastest changes in the *keiretsu* system are likely to occur in distribution. The economic rationale for the vertical buyer-supplier relationships is so strong, that such *keiretsu* are unlikely to change much. The conglomerate *keiretsu* are likely to grow rather than to shrink, although coordination among member companies is likely

⁴² This was explained in a briefing by Dirk Vaubel, President of Vaubel & Partners, Ltd., Tokyo, Japan, in March 1990.

⁴³ Schlesinger, Jacob M. Japan's NTT Loosens Its 'Family' Ties. *The Wall Street Journal*, May 21, 1990, p. A8.

⁴⁴ Prestowitz, *Trading Places*, p. 162-163.

to diminish as individual companies become more independent and networking outside the *keiretsu* system becomes more common.

Recently, in Washington, D.C., Akio Morita, the Chairman of the Sony Corporation, was asked what he thought about the *keiretsu* (referring to the mammoth conglomerate *keiretsu*). His reply was that every firm would like to have a guaranteed market for some of its output. Someday, he would like Sony itself to develop into a *keiretsu*.⁴⁵ This seems to be the attitude of most of Japanese big business.

Japan's Keidanren (Federation of Economic Organizations), a powerful voice representing big business, favors a review of Japan's competition policy and some increased enforcement of the antimonopoly law. It points out, however, that if the law were to be revised without also changing the statutory waivers from applications of the law for selected industries, inequities would develop. They favor establishing the rule of "free in principle, subject to regulation only in exceptional circumstances" and more transparency in administering the law and applying regulatory guidelines. They agree with the United States that governmental administrative guidance should be given in writing, and not just orally.⁴⁶

Keidanren, however, comprises nearly all the *keiretsu* companies in Japan. While it favors a stronger JFTC, it still considers the *keiretsu*, in general, to be a strength of Japan. Stronger antimonopoly enforcement, therefore, is not likely to lead to a demise of the *keiretsu*. Americans too might consider emulating this form of business organization. In a recent article in the *Harvard Business Review* that discusses the future of the computer hardware industry, the author concludes: . . . To compete in the new digital information industry, U.S. and European companies must expand their alliance into a new industrial architecture. . . . They must build large-scale corporate families that are strategically cohesive, yet entrepreneurial and flexible. They must form uniquely American (or Euro-American) versions of the Japanese *keiretsu* . . .⁴⁷

⁴⁵ Address before the Center for Strategic and International Studies' Congressional Staff Working Group, June 5, 1990. Washington, D.C.

⁴⁶ Keidanren (Japan Federation of Economic Organizations). *Keidanren Position Paper on the Structural Impediments Initiative (SII) Talks*. March 13, 1990. Tokyo, Keidanren. p. 5.

⁴⁷ Ferguson, Charles H. Computers and the Coming of the U.S. Keiretsu. *Harvard Business Review*, v. 90, July-August 1990. p. 56.

PRODUCTIVITY OF JAPANESE MANUFACTURING INDUSTRIES AND THEIR MARKET COMPETITION

By Tetsuji Yamada, Tadashi Yamada, and Guoen Liu ¹

CONTENTS

	Page
Summary and Policy Implications.....	89
Introduction.....	91
Analytical Framework.....	92
Empirical Results.....	95
References.....	98

SUMMARY AND POLICY IMPLICATIONS

In this study, we examine the influence of factors on productivity (value added) in various manufacturing industries in Japan. We also explore the behavior of manufacturing industries and their product markets. The results indicate that labor productivity in motor vehicles, transportation equipment, shipbuilding, and precision products industries is very high. Electric machinery and equipment, and communication equipment industries are both capital and labor efficient. Food, spinning, textile, paper, chemical, drugs and medicine, petroleum, and machinery industries are more labor efficient than capital efficient. Interestingly, our results reveal that the *quality* of capital is generally more important to increasing productivity than the *quantity* of capital. The quality of capital is more important in electric machinery and equipment, communication equipment, motor vehicles, transportation equipment and precision products industries than other industries in Japan.

The findings imply that workers in Japan are using capital of high quality, not of high quantity. Japanese firms are therefore trying to figure out how to make production more efficient and how to improve the quality of products. One could argue that this reveals the importance of the quality of the workers, as indicated by human capital developed through education and training. The U.S. Government could encourage more productive use of workers

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by adopting a policy that would seek not only to save on the use of labor but also to upgrade the quality of workers.

We observe that Japanese manufacturing industries generally increase productivity by R&D. Our results show that the allocation of R&D resources aims at improved product technology in food, spinning, textile, paper products, electric machinery and equipment, and communication equipment industries in Japan. Chemical, drug and medicine, petroleum products, machinery, motor vehicles, and transportation equipment industries focus instead on improved process technology. The stock of technological knowledge depreciates and becomes obsolete quickly in some industries. The high turnover rate of technology unfavorably affects electric machinery and equipment, communication equipment, chemical products, drug and medicine, and petroleum products industries. The rest of the manufacturing industries are enjoying a productive stock of technological knowledge.

The spillover effects also depend on characteristics of manufacturing industries. Electric machinery and equipment, communication equipment and precision products industries receive positive spillover effects from R&D embodied in intermediate goods, while food, spinning, textile, paper products, chemicals, drug and medicine, petroleum products, motor vehicles, shipbuilding and transportation equipment industries enjoy positive externalities from R&D embodied in investment goods. R&D is heavily funded by private firms in Japan while it is funded by governments in the United States.

Although the effects of R&D are diversified positively and negatively among manufacturing industries, the continuing business environment that permits greater rewards for short-term financial results in the United States and for long-term financial results in Japan will continue to affect both countries' productivity. Policies could be considered in the United States to shift government priorities and to change the business environment.

We find interesting the results which present evidence of the competitiveness of products markets and manufacturing industries. From the estimated coefficients of product price, manufacturing industries can be categorized into three groups in terms of competition in the domestic product market and the competitiveness of manufacturing industries in the world market.

Given consumer tastes and quality, the most competitive markets are found in electric machinery and equipment, communication equipment, motor vehicles, shipbuilding, and transportation equipment industries. These industries face a fiercely competitive market and a very elastic demand for their products. As we noted, these industries are relatively aggressive in the world market and have penetrated deeply into the U.S. market.

The less competitive markets are in chemical products, drugs and medicine, petroleum products and precision products industries, although these industries face a relatively elastic product demand curve in Japan. We remark on the price discrimination or the quasi-dumping of precision products between Japan and the U.S. markets. Japanese drug and medicine industries are not highly developed yet in terms of the quality of products. It is

known that non-trade barriers exist in Japan for drug and medicine products.

The least elastic demand curves for the domestic product market are for the food, spinning, textile, paper and pulp products, iron, steel, and metal products industries, though their demand curves are moderately elastic. We recognize that these industries are not strong in the world market. Especially the food, paper and pulp products sectors, and textile products possess explicit trade barriers in Japan. The iron, steel, metal, and textile industries confront the competition from developing countries' market penetration in Japanese market. We note that Japanese industries which produce iron, steel and metal products have recently tended to develop high value-added quality products and to diversify their products.

The results imply that all Japanese manufacturing industries are not price competitive in the world market, although the industries face stiff competition and elastic demand in the domestic product markets. Trade and non-trade barriers supported by the Japanese government reflect the manufacturing industries' position and their efficiency level in the world market. The evidence presented indicates that, trade and non-trade barriers aside, if U.S. manufacturers raised their efficiency and lowered their costs, the resulting further improvement in their competitive position in the world market would facilitate penetration into the Japanese market.

INTRODUCTION

Japan has become the United States' principal competitor in many different industries. Its remarkable record of labor productivity growth is attributed in large part to the high quality of its labor. The literature also often cites the effect of the stock of capital and R&D on labor productivity. The growth of output per worker from 1977 to 1987 was 35 percent in Japan while only 7 percent in the United States. Why is Japan able to maintain its high productivity growth? What is behind it? In economic terms, Japan is a large country with a large domestic market in addition to its well-known strength in export markets. In an area that is one twenty-fifth the size of the United States, its population is slightly over a half, and its total GNP is about one-half that of the United States. A major difference between the two nations is the productivity of their economies.

In the next decade, labor force growth is expected to slow, giving rise to concern that both the United States and Japan are facing an aging labor force. As labor becomes more scarce, firms have to make more efficient use of their workers and introduce labor-saving innovations. It is obviously important from both the firm's and the government's viewpoint to seek new and better ways to improve the productivity of workers. An effective government policy toward industries would be to encourage a more productive use of human resources.

In this paper we try to analyze the following current issues: 1) What are the factors influencing productivity in different manufacturing industries? 2) What degree of competition faces U.S. producers seeking to enter Japanese markets? 3) What are the policies

needed to maintain high labor productivity growth in the face of unfavorable circumstances such as an aging labor force and declining labor force growth, due to slow population growth?

In this study we examine the causes of productivity in manufacturing industries from three angles. The first is that we focus on the influence of capital, R&D, technological knowledge, and other factors on productivity. The second is that we scrutinize the competitiveness of different manufacturing industries. The third is that we examine the effect of inter-industry spillovers of technology.

There is a real need for studies that convincingly explain the recent productivity growth slowdown at an industry level. Nelson (1981), Baily (1981), Fischer (1988), Griliches (1988) and Jorgenson (1988b) address the facts of the recent productivity slowdown in the United States, Japan, or other nations. Baily observes the high rate of labor growth due to a flood of baby boomers and women entering the work force, while Olson (1988) demonstrates the costs of higher oil prices. In recent articles on the United States, the studies of Norsworthy and Malmquist (1983), Bernstein and Nadiri (1988), Griliches (1988), and Mansfield (1988) emphasize the contribution of research and development (R&D) to productivity growth. A few of the many studies formally take into account Japanese productivity. Griliches (1986), Odagiri and Iwata (1986), Mansfield (1986), and Goto and Suzuki (1989) emphasize the influence of R&D while Norsworthy and Malmquist (1983) focus on the contribution of labor, capital, energy and materials to the productivity of manufacturing industries in Japan. Jorgenson (1988a) compares the impact of external shocks, namely the oil crisis, on technological change and productivity growth in U.S. industries to that on Japanese industries. Our paper not only examines the influence of labor, capital and R&D on productivity but also addresses the influence of input materials which embody spillovers of new technologies developed by other industries. Goto and Suzuki (1989) find evidence of a diffusion of technology from electronics-related industries to other industries in Japan. In addition, this study also tries to examine industries' market pressures by looking at the elasticity of value-added with respect to product prices.

ANALYTICAL FRAMEWORK

The remainder of this paper describes the econometric work underlying the findings of this study. It is provided for those familiar with regression analysis.

The rationale for including the variables value added, R , labor, L , capital, K , and research and development, $R\&D$, in the model is found in productivity studies in the literature.² Aside from the conventional variables in a productivity study, we also examine the market conditions under which the firm earns revenues. Value added is defined as total revenue minus the cost of intermediate goods. The product price obviously depends on the cost of the intermediate goods which the firm uses. However, the price of the intermediate goods that the firm uses does not depend on the price of its

² See: Mansfield (1980 and 1988), Goto, Honjo, Suzuki and Takinosawa (1986), Griliches (1986), Bernstein and Nadiri (1988), Goto and Suzuki (1989), and Lichtenberg and Siegel (1989).

own products. This independence of intermediate-good prices and final-good prices enables one to infer the elasticity of productivity with respect to an industry's own product price from the elasticity of value added. A negative elasticity indicates an inverse relation between value added and the price of own product. A positive elasticity of value added implies an inelastic demand curve of own product in the market for a particular industry. To observe the manufacturing industries' behavior this study incorporates product prices into the model.

Each industry is assumed to have a Cobb-Douglas production function which is factor-wise separable. Suppose that we specify a generalized Cobb-Douglas of the form

$$f(x) = A \prod_{i=1}^m \alpha_i (X^i)^{\alpha_i} \dots 1.$$

The production function is

$$Q = f(L, K, R\&D, T, D) \dots 2.$$

and

$$T = f(\text{technological knowledge, quality of capital, outside R\&D in input materials}) \dots 3.$$

where Q is the industry's output in a particular year, L is labor, K is physical capital, $R\&D$ is research and development, T is technology embodied in a particular industry, and D is an external factor which affects the production (the time subscript, t , is omitted for brevity).

The dependent variable, revenue, is given by $R = Q \cdot P_Q$, where P_Q is an output price. Thus $\ln R = \ln Q + \ln P_Q$, assuming that the generalized Cobb-Douglas function (1) is a linear-in-logarithms function. Substituting (2) and (3) into the revenue function for the Cobb-Douglas production function, we estimate the following equation for a particular manufacturing industry for the period 1975 to 1982,

$$\ln R = \ln A + \alpha_1 \ln L + \alpha_2 \ln K + \alpha_3 \ln R\&D + \sum_{i=4}^7 \alpha_i \ln T_i + \alpha_8 \ln D + \alpha_9 \ln P_Q \dots 4,$$

where $\alpha_1 + \alpha_2 \neq 1$, and the variables in the model are defined in table 4.

We employ value added, R , as a proxy of productivity measure. Labor can increase output, namely value added in this study, by using more capital and by incorporating $R\&D$ and technological knowledge embodied in a particular firm or industry. The contribution to productivity of labor can not be isolated from the contribution of other factors. The model does not impose constraints on coefficients α_1 and α_2 . Therefore, $R\&D$ expenditures are an input along with the conventional inputs, labor and capital.

T is a function of four variables: technological knowledge, quality of capital, intermediate/RD and investment/RD. Goto and Suzuki (1989) construct intermediate and investment $R\&D$'s embodied by other industries by using an input-output table of transaction

flows.³ Baily (1981) argues that flows and stocks of technology affect productivity differently. Technological knowledge, a stock concept, reflects the know-how possessed by a firm in an industry at a certain time. It depreciates and becomes obsolete with time. A particular industry owns a certain stock of characteristic knowledge.⁴ Goto and Suzuki (1989) demonstrate the impact of spillovers of the technological knowledge of the electronics-related industries to other Japanese related industries. The spillover effect is, however, generated by firms which are outside the receiving firm's cluster (Jaffe 1988), i.e., whose technological focus differs from the firm receiving the technology. Inter-industry spillovers of technology will not be overlooked.

This study not only examines R&D embodied in intermediate inputs and investment but also the interaction of different manufacturing industries. We employ price of capital, P_K , in each manufacturing industry as a proxy measure of quality of capital and expect it to have a positive effect on productivity.

Unexpected external shocks affect manufacturing productivity and lead to changes in the use of factor inputs. For example, the oil shock affected the evolution of technology, leading to changes in the share of energy and resource inputs in total inputs. We are interested in detecting biased technical change in manufacturing behavior as Jorgenson (1988a) demonstrates a change in the use of factor inputs caused by the energy crises. Dummy variable, D , is used to proxy external shocks—the oil price hikes—affecting the behavior of the manufacturing industry. To examine the competitiveness of product markets, we utilize a price of product, P_Q , in each manufacturing industry, the coefficient of which reflects the elasticity of value added.

The data used in this study are pooled cross-section and time-series data, for the period 1975 to 1982. We perform the analysis separately for seven different manufacturing industry aggregates (see table 4 for the composition of the industry aggregates).⁵ There are two kinds of variations in the dependent variable—cross-section and time variations—in addition to a random normal disturbance. Thus we adopt specifications that allow for heteroscedasticity and autocorrelation in the pooled data. The first model is a variance component model. The basic assumption is that the regression dis-

³ Goto, Akira, and Kazuyuki Suzuki. R&D Capital, Rate of Return on R&D Investment and Spillover of R&D in Japanese Manufacturing Industries. *Review of Economics and Statistics*, v. 71, November 1989. p. 555–564. Goto and Suzuki show that the flow of technology embodied in intermediate goods from industry i to industry j equals the input coefficient of the transaction flow matrix times R&D where R&D is the expenditures on research and development of industry i . Our variable, intermediate/RD, uses this concept, so $\text{Intermediate/RD} = \tau_{ij} \text{R\&D}_i / \text{R\&D}_j$. $\text{Investment}_{ij} = \tau_{ij} (IV_i / \text{TS}_i) (KS_{ij} / IV_j)$, where Investment_{ij} is the flow of technology from industry i to industry j embodied in investment goods; IV_i is the sales of industry i to the investment sector; TS_i is the total sales of industry i ; and KS_{ij} is the sales of capital goods from industry i to industry j . Hence, $\text{Investment/RD} = \{\tau_{ij} (IV_i / \text{TS}_i) (KS_{ij} / IV_j)\} / \text{R\&D}_j$.

⁴ Goto, Akira, Noboru Honjo, Kazuyuki Suzuki, and Mamoru Takinosawa. *Keizai Kaihatsu To Gijutsu Shinpo No Bunseki* (Research and Development, and Technological Progress in Economic Analysis). *Keizai Bunseki* (Economic Analysis), v. 103, September 1986. p. 1–96. and Goto and Suzuki (1989) constructed the index of the stock of knowledge. They permitted us to use the unique data on stock of knowledge and other data for this study.

⁵ The pooled cross-section and time-series data for this study are provided and permitted for use by Professor Akira Goto of Hitotsubashi University and Mr. Kenji Umetani of the Economic Planning Agency of the Japanese Government. These data are also in Goto et al., 1986. The industry classification used in this study roughly corresponds to the three-digit industry classification for the years 1975–1982 (see Goto et al., 1989).

turbance is composed of three independent components—one component associated with time, another associated with the cross-sectional units, and the third varying in both dimensions (Kmenta 1986). For this model, we use the method proposed by Fuller and Battese (1974). The second approach is the cross-sectionally correlated and time-wise autoregressive model which assumes mutually correlated cross-sectional units (Kmenta 1986). Here we use the method proposed by Parks (1967). The advantages and disadvantages are comprehensively discussed by Kmenta (1986).

EMPIRICAL RESULTS

The regression estimates for equation (4) are reported in tables 1-3. All variables are in natural logarithms so that coefficients are interpreted as elasticities. Before moving to a detailed discussion, we can see the robustness of the two estimation procedures discussed in section II for our model. The estimated coefficients are qualitatively and quantitatively consistent except for a few results.

First, consider the coefficients of the labor variable in each industry. The relatively large coefficients indicate that these industries are competitive in international markets because of the efficient use of labor. A 1 percent increase in labor creates between a 1.2 and a 1.5 percent increase in value added in industry F (motor vehicles, shipbuilding and transportation equipment manufacturing industries). The precision-instruments industry, G, is also in a strong competitive position. F and G produce, on average, an extra Y42,000 and Y39,000 in value added, respectively, when one man hour is added. Unlike industries F and G, the labor productivity of industry C (iron, steel and metal products industries) is low. The marginal productivity of labor in industry C is only Y7,600 per man hour. This industry is in a weak competitive position in the world market.

Looking at the relative productivity of additional labor and capital inputs, industries A (food, spinning, textile and paper products), B (chemical, drug and medicine, and petroleum products) and D (machinery), a 1 percent increase in labor increases output by more than a 1 percent increase in capital. Interestingly, the marginal effects of capital on value added vary considerably among the A, B, and D industries. A Y1.0 million increase in capital expenditures creates an additional Y0.055 (A), Y0.035 (B), and Y2.39 (D) million in value added in these industries. Unlike in the machinery industry, in the food, textile, paper, chemical, drug and medicine, and petroleum products industries, capital is less efficient in Japan. As for the E (electric machinery and equipment, and communication equipment) industry, a 1 percent increase in labor input, creates about the same increase in value added as a 1 percent increase in capital input. Thus, the mix of labor and capital inputs are fairly efficient. In terms of marginal changes, an additional one man-hour input produces Y26,000 in value added, while an additional Y1.0 million in capital expenditures produces Y1.03 million of value added in E industry. Although Jorgenson (1988) emphasizes the importance of capital to Japanese productivity, the results of this study demonstrate that the return to labor in various manufacturing industries is substantially higher than the

return to capital. Labor is efficient, an indication of the high quality of workers.

Next, we consider the implication of the results for the allocation of R&D resources between projects aimed at improving process technology and product technology. Bernstein and Nadiri (1988) find that R&D is a substitute for labor in their study of the United States. Our results are generally rather complementary to theirs.

The results also provide insights as to whether Japanese R&D is product-technology or process-technology-oriented. Mansfield (1988) shows that Japanese R&D is oriented to process technology, a finding congruent with the estimated coefficients of All Manufacturing Industries in table 3. The estimated elasticities and marginal effects of R&D on value added show considerable variation. What is especially noteworthy is that B (iron, steel and metal), D (machinery) and F (motor vehicles, shipbuilding and transportation equipment) industries put more emphasis on using R&D to improve process technology. The large estimated coefficients suggest that these B, D, and F industries in Japan try to improve their cost efficiency and increase production through innovation. The A (food, spinning, textile and paper) and E (electric machinery and equipment, and communication equipment, industries tend to be associated with a product technology orientation.

The estimated coefficients of technological knowledge indicate another side of technology used by firms in manufacturing industries. The stock of knowledge is constantly replaced by new technological knowledge and quickly becomes obsolete as a result of the diffusion of knowledge to other firms or industries. The negative coefficients of technological knowledge in E (electric machinery and equipment, and communication equipment) industry and B (chemical, drug and medicine, and petroleum products) industry reflect the high turnover rate of technology there. On the other hand, A, C, D, F, and G industries enjoy productive stocks of knowledge. A 1 percent increase in the stock of technological knowledge creates a 0.13 percent increase in value added in food, spinning, textile and paper industries; a 0.4 percent gain in the iron, steel and metal industries; a 0.27 percent increase in the machinery industry; a 0.26 percent gain in automobile and shipbuilding industries; and a 0.05 percent increase in the precision-instruments industry.

Next we consider the effect of the quality of capital, P_K , on productivity. The positive estimated coefficients show that an increase in the quality of capital raises value added. Relatively quantitatively large coefficients in the E, F and G industries compared with the A, C and D industries provide some information about the large influence of updated capital on productivity in electric machinery and equipment, communication equipment, transportation equipment and precision products industries. The A (food, spinning, textile and paper products) industry has less emphasis on the quality of capital.

In examining the demand conditions of manufacturing industries we focus on the elasticity of value added in a particular industry with respect to its product price. This way of measurement reveals the level of competitiveness of Japanese markets and the degree of difficulty in entering them faced by foreign producers. Note that

the negative coefficients of variable P_0 in tables 1-3 indicate an inverse relation between the price of product and the value added and the high elasticity of the demand curve of product market. Put differently, the firms in each industry are facing a relatively competitive product market in Japan. Especially electric machinery and equipment, communication equipment, motor vehicles, shipbuilding, and transportation equipment industries are in a fiercely price-competitive market. However, given consumer tastes and product quality (and ignoring non-trade barriers), there exists room to enter the Japanese market via price reduction in the E and F industries. A 1 percent reduction in product price creates a response of more than a 1 percent increase in product sales in these industries. Unlike the E and F industries, chemical, drug and medicine, petroleum products and precision industries are less competitive. The least price competitive markets are food, spinning, textile, paper, iron, steel and metal products industries, A and C industries in table 1. We notice that these industries are not in a strong position in the international market and that Japan seems to have trade and non-trade barriers for these industries, as the U.S. Government often points out to the Japanese government. It is perhaps not surprising that our results are congruent with Japanese manufacturing products position in the world market and that the results indicate the ease of entry into the Japanese market and the level of competition of the manufacturing products markets.

Turning attention to spillover effects of the distribution of R&D effort among manufacturing industries, the negative coefficients of Intermediate/RD variable in tables 1-3 suggest that an increase in R&D effort by other industries in the intermediate goods reduces value added. A 1 percent increase in the ratio lowers the value added by 0.14 percent in industry A and by 0.27 percent in industry B. The effect of the ratio on the value added in F (motor vehicles, shipbuilding and transportation equipment) industry is about 0.4 percent, which is larger than in the A and B industries. The interpretation of these qualitative figures implies that industry F requires more own R&D effort within a firm or an industry. Electric related products industry E seems to enjoy an inside pool of R&D effort. The positive estimated coefficient of E industry supports the empirical finding of Goto and Suzuki (1989). The spillover effect positively influences productivity in the precision industry, G. As for G industry, the positive coefficient of intermediate/RD indicates benefits from spillovers of outside technology (Jaffe 1988). Therefore, the results suggest that an increase in embodied R&D developed by other firms or industries in intermediate goods would not necessarily have a positive spillover effect. It, rather, depends on the characteristics of the manufacturing industries. Another type of spillover effect is examined by the variable of investment/RD. Rapid technological progress and intense competition tend to encourage firms to possess their technological innovations. The negative coefficients indicate that an increase in the R&D embodied by other firms or industries into own investment has a tendency to reduce the value added in E and G industries. The effect in electric machinery and equipment and communication equipment products industries is larger than that in the precision industry. The quantitative comparison between the coefficient of industry F

and industry G in tables 1-3 reveals the nature of advance in technological competition with other in-cluster firms. The positive coefficients of the A, B and F industries are observable as are the positive spillover effects. All impacts in these industries (A, B and F) are similar in terms of the size of the elasticity. A 1 percent increase in investment/RD raises value added by a 0.2-0.3 percent. The results of the spillover effect of R&D embodied by other firms in industries in the investment by a particular firm or by an industry again imply that the qualitative influence depends on characteristics of manufacturing industries.

Finally, we consider how an external shock influences productivity behavior. Using a dummy variable, D, we differentiate the oil crisis from the rest of period. Jorgenson (1988) defines the bias of technological change induced by an evolution of technology by the direction of change in input share and use due to an external shock. He characterizes Japanese change as energy using. His hypothesis implies a reduction in the rate of technical change during the oil crisis in Japan. Our application of his hypothesis to our empirical study does not reveal clear-cut evidence. The positive estimated coefficients indicate that the technical change is energy saving and labor using with given capital. The influence on labor productivity in the B (chemical, drug and medicine, and petroleum products) industry is larger than that in the E (electric machinery and equipment, and communication equipment) industry and that in the G (precision products) industry. A (food, spinning, textile and paper products) industry obtains a small influence of technical change on labor productivity. The result for F (motor vehicles, ship-building and transportation equipment) industry is consistent with Jorgenson's hypothesis.

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Table 1. REGRESSION RESULTS OF THE PRODUCTIVITY OF MANUFACTURING INDUSTRIES

Independent Variable	A Industry		B Industry		C Industry	
	F & B Method	Parks Method	F & B Method	Parks Method	F & B Method	Parks Method
Labor.....	¹ .745 (12.06)	¹ .771 (54.21)	² .632 (2.19)	¹ .667 (11.62)	¹ .143 (3.51)	¹ .157 (8.59)
Capital.....	³ .095 (1.79)	¹ .060 (4.65)	.042 (.21)	.053 (1.43)	¹ .424 (3.54)	¹ .400 (9.93)
R&D.....	.039 (1.13)	¹ .050 (11.70)	.015 (.10)	¹ .206 (7.80)	— .067 (— .53)	— .028 (— .73)
Technological Knowledge.....	¹ .130 (3.19)	¹ .131 (14.09)	.107 (.92)	¹ — .164 (— 4.08)	³ .370 (1.75)	¹ — .443 (— 9.17)
P _K	³ .140 (1.95)	¹ .160 (9.80)	— .125 (— .42)	— .031 (— .59)	.259 (1.16)	¹ .328 (3.09)
P _Q	² — .410 (— 2.52)	¹ — .320 (— 15.05)	¹ — .698 (— 4.41)	¹ — .631 (— 10.73)	³ — .481 (— 1.93)	— .472 (— 3.57)
Intermediate/RD.....	¹ — .131 (— 3.74)	¹ — .141 (— 19.48)	³ — .316 (— 1.71)	¹ — .214 (— 12.89)	— .044 (— .38)	— .005 (— .09)
Investment/RD.....	¹ .228 (6.36)	¹ .260 (31.64)	³ .372 (1.95)	¹ .266 (14.38)	.030 (.20)	— .034 (— .39)
D.....	³ .074 (1.96)	¹ .047 (11.35)	¹ .230 (2.73)	¹ .210 (9.86)	.017 (.29)	— .003 (— .13)
Intercept.....	— .824 (— .99)	¹ — 1.349 (— 15.42)	5.127 (1.19)	¹ 4.835 (12.56)	2.364 (1.08)	.669 (.46)
P _e.....	.0012		.0439		.0835	
P _t.....	.0007		.0000		.0000	
P _e.....	.0018		.0119		.0076	
M.S.E. ....	.0017	1.040	.0135	.7312	.0068	1.142

¹ Indicates statistical significance at the 1 percent level.

² Indicates statistical significance at the 5 percent level.

³ Indicates statistical significance at the 10 percent level.

Note: t-statistics are in parentheses below the estimated coefficient. P_C is the variance component for cross-sections. P_t is the variance component for time series. P_e is the variance component for error. M.S.E. is the transformed regression's mean squared error.

Table 2. REGRESSION RESULTS OF THE PRODUCTIVITY OF MANUFACTURING INDUSTRIES

Independent Variable	O Industry		E Industry		F Industry	
	F&B Method	Parks Method	F&B Method	Parks Method	F&B Method	Parks Method
Labor.....	¹ .668 (3.09)	¹ .509 (4.90)	¹ .634 (3.93)	¹ .693 (14.23)	¹ 1.493 (4.15)	¹ 1.162 (12.18)
Capital.....	.080 (.53)	¹ .154 (1.85)	¹ .432 (3.96)	¹ .349 (4.04)	-.313 (-1.20)	¹ -.584 (-5.22)
R&D.....	¹ .148 (1.77)	¹ .290 (5.71)	-.023 (-.33)	¹ .098 (1.98)	.059 (.48)	² .149 (2.68)
Technological knowledge.....	.163 (1.35)	¹ .266 (1.93)	-.013 (-.12)	¹ -.168 (-3.09)	-.247 (-.93)	² .257 (2.69)
P _K.....	.286 (.86)	.101 (.75)	¹ .704 (3.75)	¹ .549 (6.87)	.578 (1.50)	¹ .923 (6.34)
P _Q	-.178 (-.31)	-.213 (-.39)	¹ -.1014 (-6.82)	¹ -.470 (-3.82)	¹ -.1027 (-1.20)	¹ -.3.132 (-8.61)
Intermediate/RD.....	-.144	-.148	.023	¹ .097	-.103	¹ -.439
Investment/RD.....	.166	.057	-.046	¹ -.156	-.298	¹ .223
O.....	.017	.024	¹ .128	¹ .124	-.013	¹ -.158
Intercept.....	-2.803	-3.023	-1.229	¹ -2.734	-4.518	¹ 6.815
P _C.....	.1796		.0702		1.5511	
P _T.....	.0016		.0005		.0000	
P _e.....	.0087		.0017		.0084	
M.S.E.....	.0101	.6214	.0018	.6428	.0072	1.1430

¹ Indicates statistical significance at the 1 percent level.² Indicates statistical significance at the 5 percent level.³ Indicates statistical significance at the 10 percent level.Note: t-statistics are in parentheses below the estimated coefficient. P_C is the variance component for cross-sections. P_T is the variance component for time series. P_e is the variance component for error. M.S.E. is the transformed regression's mean squared error.

Table 3. REGRESSION RESULTS OF THE PRODUCTIVITY OF MANUFACTURING INDUSTRIES

Independent Variable	G Industry		All Industries	
	F&B Method	Parks Method	F&B Method	Parks Method
Labor.....	¹ 1.036 (4.88)	¹ .877 (25.72)	¹ .281 (7.61)	¹ .520 (9.59)
Capital.....	.105 (.87)	¹ .244 (5.12)	¹ .419 (12.76)	¹ .299 (7.51)
R&D.....	-.081 (-1.07)	-.071 (-1.20)	¹ .128 (4.27)	¹ .189 (11.29)
Technological knowledge.....	¹ .051 (2.08)	¹ .044 (3.83)	.041 (1.26)	-.016 (-.511)
P _K	¹ .870 (3.49)	¹ .851 (9.99)	¹ .371 (5.41)	¹ .299 (10.84)
P _Q	¹ -.579 (-3.07)	¹ -.703 (-6.31)	¹ -.679 (-8.87)	¹ -.476 (-5.20)
Intermediate/RD.....	² .239 (2.45)	¹ .193 (3.04)	-.03 (-.67)	¹ -.84 (-5.09)
Investment/RD.....	² -.124 (-2.60)	¹ -.096 (-3.98)	-.009 (-.31)	¹ .089 (2.94)
O.....	¹ .186 (3.24)	¹ .130 (8.64)	¹ .058 (2.81)	.019 (1.37)
Intercept.....	² -6.206 (-2.25)	¹ -4.633 (-6.72)	¹ 2.395 (4.36)	-.234 (-.33)
P _C.....	.0597		.0572	
P _T.....	.0009		.0000	
P _e.....	.0015		.0088	
M.S.E.....	.0016	1.5331	.0094	.0730

¹ Indicates statistical significance at the 1 percent level.² Indicates statistical significance at the 5 percent level.³ Indicates statistical significance at the 10 percent level.Note: t-statistics are in parentheses below the estimated coefficient. P_C is the variance component for cross-sections. P_T is the variance component for time series. P_e is the variance component for error. M.S.E. is the transformed regression's mean squared error.

Table 4. DEFINITION OF VARIABLES*

Variable Name	Definition
A (industry)	food, spinning, textile, paper and pulp products industry, 48 observations.
B (industry)	chemicals, oil and fat, drugs and medicines, and petroleum products industry, 64 observations.
C (industry)	iron and steel, metals, and wire and cable products industry, 48 observations.
D (industry)	machinery products (engine and turbine, construction and mining, metalworking, textile, office, and general) industry, 72 observations.
E (industry)	electric machinery, electric equipment, communications equipment products industry, 64 observations.
F (industry)	Motor vehicles, shipbuilding and transportation equipment industry, 32 observations.
G (industry)	precision instrument products (measuring and analytical, physical, optical and lenses, and watches) industry, 32 observations.
R	real value-added, in million yen (each categorical industry A or B or C or D or E or F or G has own mean and standard deviation).
Labor	labor input in man thousand hours (each categorical industry A or B or C or D or E or F or G has own mean and standard deviation).
Capital	capital input, in million yen (each categorical industry A or B or C or D or E or F or G has own mean and standard deviation).
R&D	real research and development, in million yen (each categorical industry A or B or C or D or E or F or G has own mean and standard deviation).
Technological	stock of technological knowledge, in million yen (each categorical industry A or B or C or D or E or F or G has own mean and standard deviation).
P_K	index of capital price (each categorical industry A or B or C or D or E or F or G has own mean and standard deviation).
P_Q	index of output price (each categorical industry A or B or C or D or E or F or G has own mean and standard deviation).
Intermediate/RD	the ratio of outside industries' R&D in input intermediate materials to own R&D by a particular industry, in million yen (each categorical industry A or B or C or D or E or F or G has own mean and standard deviation).
Investment/RD	the ratio of outside industries' R&D in investment materials to own R&D by a particular industry, in million yen (each categorical industry A or B or C or D or E or F or G has own means and standard deviation).
D	to differentiate the oil crisis from the rest of the period D=1 is used for observations from 1979 to 1982 and zero otherwise.

* The statistics are available on request.

III. FINANCE AND INVESTMENT

THE COST OF CAPITAL IN JAPAN AND THE UNITED STATES

By Douglas Ostrom ¹

CONTENTS

	Page
Summary	103
Savings, Investment and the Cost of Capital.....	104
Measuring the Cost of Capital	104
Completing the Picture: Other Dimensions of the Cost of Capital.....	105
Type of Financing.....	106
Tax Policy	107
Risk	108
Studies of the Cost of Capital	108
Other Considerations.....	111
International Borrowing and Lending	111
Covered Versus Uncovered Interest Rate Parity	111
Marginal Versus Average Rates	113
Conclusion	114

SUMMARY

What American and Japanese firms have to pay for their money is cited as a striking difference between the two economies by many analysts, who then conclude that the apparent Japanese advantage on this score has been a key determinant of the success of Japanese firms in international competition. Careful studies of the cost of capital reveal, however, that the differences are far smaller than superficial analysis would suggest, although most experts believe that the discrepancy in Japanese firms' favor does not disappear entirely. What would appear to be different management philosophies in Japanese firms may be a result of the remaining capital cost disparities.

As Japan's capital markets and businesses have become more international in their operations, the advantages of firms based in Japan probably have diminished. Japanese firms with manufacturing facilities in the United States, for example, cannot necessarily replicate in this country any advantage in capital costs over U.S. firms that they enjoy with their factories in Japan.

¹ The author is an economic analyst at the Japan Economic Institute. The views expressed in this report are those of the author and do not necessarily represent those of the Japan Economic Institute.

SAVINGS, INVESTMENT AND THE COST OF CAPITAL

Japan's postwar expansion is notable in many ways, not the least of which is the country's extraordinarily high rates of savings and investment. The high savings rate of Japanese consumers compared to that of their counterparts in other industrial countries has created a pool of surplus funds that industry can tap to finance high levels of plant and equipment spending. In the absence of trade or budget deficits and surpluses—which during most of the postwar period have been minimal relative to gross national product—high rates of savings and high levels of investment were two ways of saying the same thing; one would not have been possible without the other.

The healthy volume of investment in Japan without doubt is a major contributing factor to the country's strong postwar growth, a virtually unbroken pattern of relative success that continues to this day. Various studies of Japan's high productivity growth rate, which has permitted ever larger national output, all point to capital formation as the overwhelmingly important factor.

Such analysis pinpointing the critical role of capital spending leads, in turn, to another question: what causes the high level of investment? Many analysts have said that Japanese firms spend large amounts on plant and equipment as well as on research and development in part because the cost of capital—the return expected on such projects—has been low. As evidence they cite the low interest charges on borrowed funds and the low yield on corporate securities. This argument suggests that investors evaluate the rate of return on various possible instruments, such as bonds, stocks and bank savings deposits. The corporation has to appear likely—or to promise, in the case of bonds and similar instruments—to make enough on the proposed project and other projects to satisfy investors. Otherwise, investors will employ their money elsewhere. In other words, the cost of capital bears a close relationship to the interest rate. Other factors equal, the higher the interest rate, the higher the cost of capital.

MEASURING THE COST OF CAPITAL

Given this argument, why doesn't a simple comparison of interest rates in Japan with those in the United States and other countries settle the cost of capital question? Unfortunately, meaningful figures are not readily available. Of course, compilations of interest rate numbers abound in the United States and Japan. Without adjustment, however, these figures carry little meaning.

Based on these unadjusted numbers, American businesses sometimes argue that they cannot compete with firms from Japan because of low Japanese interest rates. They are correct about the low rates but may well be wrong about the implications. Very rarely during the postwar period have nominal Japanese interest rates been higher than those in the United States; often they have been much lower. For example, in the first quarter of 1990, long-term government bonds yielded 1.4 percent more in the United States than in Japan. This gap actually was much narrower than at other times in the recent past when it had exceeded 4 percentage points. Similarly, during the same period, short-term interest

rates in Japan were 0.7 percent lower. This occurred despite repeated efforts by the Bank of Japan in late 1989 and early 1990 to rein in the decline of the yen against the dollar in international currency markets by driving up the cost of borrowing in Japan.

These figures obviously mean that a Japanese firm pays less in interest charges on a given dollar (or yen) of borrowed funds than an American company if each borrows in its domestic market. However, economists agree that such a statement by itself proves virtually nothing.

The effects of inflation pose one obstacle to judging interest rate differentials. If price increases are less in Japan than in the United States, as they generally have been in the 1980s, then the interest rate comparison is less in Japan's favor than it would appear. Adjustments for inflation would reduce the real cost of funds in the United States compared to Japan.

To see this point, consider the following example. Suppose that when a company seeks to obtain a loan it has a choice of servicing its borrowing with its output or with dollars. A steel company could repay its loan with steel, for example. (This example is not rare. Deals with centrally planned economies, such as China, sometimes involve servicing a loan with the production of the plant constructed with the loan.) Under the first choice, the company's repayment in steel remains at the same number of tons, regardless of the price of steel. Alternatively, if the repayment is fixed in dollars, rising steel prices do not increase its dollar expenditures. A steel repayment scheme would be a fixed obligation in terms of the percentage of the company's output, but a dollar-based plan would necessitate selling fewer tons of steel to meet the contracted dollar repayment if prices should rise. In other words, dollar-denominated repayment schemes become less burdensome in the presence of inflation. Therefore, the typical loan where repayment is fixed in money—rather than output—becomes cheaper when the rate of inflation is higher, other factors being equal.

With greater inflation in the United States than in Japan, American firms have experienced a considerably larger offset to their interest payments than have Japanese companies. Table 1 shows a very rough comparison of interest rates in the United States and Japan in recent years after making a crude adjustment for price increases in both countries. The gap between interest rates narrows as a result of adjusting for inflation, but it usually does not disappear completely. Note that in the early 1980s and in the first 2 months of 1990, this measure actually showed real interest rates higher in Japan.

In early 1990, the Bank of Japan tightened monetary policy. As a result, nominal interest rates in the United States and Japan converged significantly.

Japan's Long-Term Credit Bank, Ltd. has calculated that inflation-adjusted, long-term rates were actually 1 percent higher in Japan as of early July 1990.

COMPLETING THE PICTURE: OTHER DIMENSIONS OF THE COST OF CAPITAL

Most writers who concern themselves about the cost of capital stop here. As shown in table 1, adjustments for inflation typically

fail to completely remove the lower price of funds in Japan, with the 1980-81 period and early 1990 being exceptions. Other researchers add a number of other factors to reach a more sophisticated judgment.

Table 1. YIELDS ON GOVERNMENT BONDS IN JAPAN AND THE UNITED STATES, 1980-89

	United States		Japan		Percentage Point Difference	
	Nominal	Real	Nominal	Real	Nominal	Real
1980.....	11.5%	-2.0%	9.2%	1.5%	2.2	-3.6
1981.....	13.9	3.6	8.7	3.8	5.2	-0.2
1982.....	13.0	6.8	8.1	5.4	4.9	1.4
1983.....	11.1	7.9	7.4	5.5	3.7	2.4
1984.....	12.5	8.2	6.8	4.5	5.7	3.7
1985.....	10.6	7.0	6.3	4.3	4.3	2.7
1986.....	7.7	5.8	4.9	4.3	2.7	1.4
1987.....	8.4	4.7	4.2	4.2	4.2	0.5
1988.....	8.9	4.9	4.3	3.6	4.6	1.3
1989.....	8.6	3.7	5.1	2.8	3.5	0.9
1989 i.....	9.2	4.4	4.6	3.5	4.7	1.0
ii.....	8.8	3.6	5.0	2.3	3.8	1.3
iii.....	8.1	3.4	5.0	2.3	3.1	1.1
iv.....	8.0	3.3	5.7	3.0	2.2	0.3
1990 i.....	8.4	3.2	7.0	3.6	1.4	-0.4

Source: International Monetary Fund

Type of Financing

Not all forms of funding are created equal. Firms in both the United States and Japan usually finance their activities with some combination of debt, whether borrowed or raised on capital markets, funds raised by selling stock (new equity) or another form of equity, reinvested earnings. Differences between the United States and Japan in the cost of each of these sources of funds, as well as the various mixes of financing, contribute to distinctions in the overall cost of capital.

How to measure the cost of debt and equity is the first problem. For example, in the absence of inflation and other factors to be considered below, the cost of debt corresponds to the interest rate. However, what is the cost of newly raised equity or reinvested profits? Most often, researchers apply a figure that the stock market has assigned—the net income of a firm as a percentage of the market value of the firm's equity. (This figure is equal to the reciprocal of the price/earnings ratio familiar to stock analysts.) This suggests that if a company's stock is selling at \$40 per share and the company is earning \$8 per share, the cost of equity capital is 20 percent; the firm has to earn 20 percent on any planned investment financed with equity to meet the expectations of the stock market. Some researchers question, however, whether firms treat all forms of equity finance equally. For example, some U.S. companies have been accused of squandering retained profits on projects that yield far less than market rates of return for stockholders. This raises questions of whether their shareholders are indifferent to the return on reinvested income and of the appropriateness of

using earnings and stock prices as a guide to stockholder expectations.

A second problem is the mix between equity and debt. Business page headlines in American newspapers routinely report soaring debt levels for U.S. corporations; Japanese firms, much less involved in leveraged buyouts, would appear to have much lower debt levels. If anything, the reverse is true, especially historically. In 1977, the book value of Japanese debt was almost four times that of equity valued at market prices; at the same time U.S. values were virtually one-to-one. In recent years the ratios have almost converged, mainly because Japanese firms are less leveraged than before—in other words, relying less on borrowed money and bonds than on equity. By 1988, the U.S. ratio had risen to slightly more than one-to-one, while Japanese corporate debt had dropped to just over one-and-a-half times equity. Most experts believe, for reasons explained below, that debt has a lower net cost than equity in both the United States and Japan. To the extent that this is true, Japan's capital cost advantage, if any, probably is narrowing.

Tax Policy

Corporations have to pay taxes. Obviously, the higher the tax rate the lower their net income in the current period and, other factors equal, the less they can reinvest or return to stockholders in the form of dividends. A higher tax increases the pretax-required rate of return on projects. For this reason, taxes raise the cost of capital, other factors equal.

Taxes complicate other factors as well. For example, returns to equity and debt typically have different tax consequences. In arriving at their taxable income firms may deduct fully interest expenses but not income accruing to stockholders. This means that a company has to generate a higher pretax return on projects financed with equity than on those backed by debt in order to generate a return to investors that is comparable, other factors equal. Put differently, the higher the percentage of equity to debt as a means of financing for the firm, the higher the cost of capital.

The complications do not end there. In addition to interest expenses, companies are allowed to take certain other deductions in computing their taxable income. For firms contemplating investment perhaps the most relevant are depreciation charges. As equipment is assumed to wear out, firms can treat a portion of the original purchase cost as an expense. The more generous the tax code in permitting such action, the smaller the tax burden. In addition, lower prevailing interest rates work to reduce the tax burden by leading to smaller discounts on future depreciation provisions. (Future depreciation allowances are worth less than current ones because the firm does not have use of the tax savings until the depreciation is allowed and thereby loses the potential return on that money in the interim. Lower interest rates reduce the extent of that loss.)

Several Japanese experts argue that corporate tax rates are higher in Japan than in the United States. Hiromitsu Ishi of Hitotsubashi University finds that the average effective rate of corpo-

rate taxation in Japan generally has been higher than in this country since the mid-1970s, with the gap widening at least through 1984.² (Professor Ishi's study covers the 1970-84 period. As such, it does not reflect the important Tax Reform Act of 1986 in the United States.) However, John B. Shoven of Stanford University has argued in a number of papers that the effective marginal tax rate was still higher in the United States in 1989, although he acknowledges that effective Japanese rates adjusted for inflation rose during the 1980s much faster than comparable U.S. rates.³

Risk

Not all projects are equally risky. If a lender senses a chance of default or a significant possibility of a much lower-than-expected return, it will demand a higher return to compensate for this prospect. If borrowers and lenders know each other well, as is likely within corporate groups, the lender may perceive less risk, particularly if it has special access to relevant information about the borrowing company. Most experts think that such group-type relations are more common among Japanese financial and nonfinancial firms, with the financial *keiretsu* structure being a case in point. However, these analysts disagree over whether this factor has led to lower borrowing costs for members of financial-based business groupings.

Finally, a record of past success may lift general expectations about future prospects; if default rates in the past in an industry or a country have been low, investors may expect similar results in the future and be willing to live with a low risk premium. With Japan's 40-year record of exceptional economic growth, lenders may feel comfortable about the unlikelihood of a macroeconomic disaster that would materially affect default rates or even expected returns. In the United States, which has suffered severe recessions during this period, such confidence levels logically would be far lower.

STUDIES OF THE COST OF CAPITAL

As should be clear by now, measuring the cost of capital in Japan compared to the United States is a tough job. In fact, it is even harder than the previous section suggests because the various dimensions of cost interact in complex ways. For example, higher tax rates increase the capital cost of risky investments more than that of less risky projects. Hence, a system where taxes are high is likely to discourage investments with substantial exposure more than those with lower risk.

Studies of the cost of capital have come to disparate conclusions.⁴ Albert Ando and Alan Auerbach, both of the University of Penn-

² Ishi, Hiromitsu. *The Japanese Tax System*. Oxford, Oxford University Press, 1989. p. 157-201. Professor Ishi also reviews earlier studies of the same question.

³ Shoven, John B. *The Japanese Tax Reform and the Effective Rate of Tax on Japanese Corporate Investments. Tax Policy and The Economy* (National Bureau of Economic Research Working Paper No. 2791), 1989.

⁴ For references to many such studies and a discussion of results in the context of competitiveness implications for U.S. and Japanese firms, see: U.S. Office of Technology Assessment. *Making Things Better: Competing in Manufacturing*. OTA-ITE-443, March 1990. Washington, 1990. p. 93-112.

sylvania, examined the cost of capital of 40 large U.S. and Japanese firms for the 1966–1981 period. After making many of the adjustments described above to the nominal cost of capital, they found little evidence that the cost of capital was lower in Japan during this time frame. Among other findings, they rejected the hypothesis that business taxation favors Japanese firms, a finding that would presumably still hold in more recent periods as Japanese tax burdens apparently have risen relative to American ones.⁵

Robert N. McCauley and Steven A. Zimmer, in an article for the Federal Reserve Bank of New York, examined the cost of capital for the United States, Japan, West Germany and the United Kingdom for the 1977–1988 period. After adjusting for taxes, inflation, differing equity/debt ratios and other factors, they found that Japan, in general, did have significantly lower capital costs than the United States and the United Kingdom, with a less clear-cut advantage over West Germany. As table 2 shows, according to Messrs. McCauley and Zimmer, Japan had uniformly lower costs than the United States in every year for a wide variety of investments. This was a result primarily of low-cost equity; for half the years after 1980 the real, after-tax cost of debt was higher in Japan than in the United States, according to their analysis. In 1988, the most recent year considered, the real cost of debt financing in Japan was the highest among the four countries studied despite it having the lowest nominal interest rates.⁶ Messrs. McCauley and Zimmer, along with other analysts, did not make adjustments for risk. They did not ask the question, for example, as to whether very risky projects had a lower cost of capital in Japan than in the United States.

Table 2. COST OF CAPITAL FOR VARIOUS PROJECTS IN UNITED STATES AND JAPAN, 1980–88

(Percentage point difference between U.S. and Japanese capital costs)

	1980	1981	1982	1983	1984	1985	1986	1987	1988
Equipment and Machinery with Physical Life of 20 Years.....	2.7	4.7	3.0	1.8	2.9	2.8	1.3	3.2	4.0
Factory with Physical Life of 40 Years.....	3.1	3.3	5.8	3.8	6.5	6.5	3.5	4.2	5.2
Research and Development Project with 10-Year Payoff Lag.....	5.1	0.3	10.1	6.5	12.6	11.0	7.4	9.8	11.6

Source: McCauley, Robert N., and Steven A. Zimmer. Explaining International Differences in the Cost of Capital. *Federal Reserve Bank of New York Quarterly Review*, Summer 1989, p. 16.

B. Douglas Bernheim of Northwestern University and John B. Shoven of Stanford University in a recent paper took the risk factor more directly into account.⁷ They found that corporate taxes increase capital costs more for risky projects than for relatively safe ones in the United States, while Japan's tax system is more

⁵ Ando, Albert, and Alan Auerbach. The Corporate Cost of Capital in Japan and the United States: A Comparison. In, Shoven, John B., ed. *Government Policy Towards Industry in the United States and Japan*. Cambridge, Cambridge University Press, 1988, p. 21–49.

⁶ McCauley, Robert N., and Steven A. Zimmer. Explaining International Differences in the Cost of Capital. *Federal Reserve Bank of New York Quarterly Review*, Summer 1989, p. 7–28. The relative cost of debt among the four countries since 1977 is shown on p. 10.

⁷ Bernheim, B. Douglas, and John B. Shoven. *Comparison of the Cost of Capital in the United States and Japan: The Roles of Risk and Taxes*. (Publication No. 179) Stanford, California, Center for Economic Policy Research, 1989.

neutral with respect to risk. Japan's corporate tax structure, in the view of Messrs. Bernheim and Shoven, discourages investment less than does the U.S. tax code. They concluded that Japanese firms generally have lower capital costs, as shown in table 3; that conclusion particularly applies for risky projects.

Table 3. COST OF CAPITAL IN THE UNITED STATES AND JAPAN, 1980 and 1988

(For plants; earnings/price basis and standardized risk)

	United States		Japan	
	1980	1988	1980	1988
Equity Financed.....	20.7%	12.6%	14.5%	5.1%
Debt Financed.....	16.7	9.7	7.4	3.0

Source: Bernheim, B. Douglas, and John B. Shoven, *Comparison of the Cost of Capital in the United States and Japan: The Roles of Risk and Taxes*. Stanford, California, Center for Economic Policy Research, 1989. Table 6.

For Messrs. Bernheim and Shoven, as with other researchers, the cost of equity financing in Japan proved particularly vexing. P/E ratios in Japan are remarkably high, even after various adjustments. This suggests, as was explained earlier, that earnings are low in relation to market value. Hence, firms would appear to have a low "hurdle" value for proposed projects financed with equity; with other factors being equal, that means a low cost of capital.

But is the matter that simple? The Japanese stock market went up significantly year in and year out during the 1980s before faltering in early 1990. Investors in Japanese companies did very well; their annual returns were far greater than those suggested by P/E ratios. To the extent that investors came to expect increasing stock values, a given company did what it could to increase its stock value to be competitive with other companies the investor might choose. Generally this meant choosing highly profitable projects that would raise the price of a company's stock. Hence, it could be argued that the relevant cost of equity capital is given more accurately by the realized percentage increase in the stock market price than by the earnings/price ratio. Messrs. Bernheim and Shoven, while preferring the earnings/price ratio as a criterion, nevertheless present the figures both ways. If stock market price increases are the standard, then the cost of equity capital would be higher in Japan than in the United States for equally risky projects in both 1980 and 1988, the two years they considered.

In summary, Messrs. Bernheim and Shoven found lower capital costs in Japan than in the United States, with the advantage particularly noteworthy for risky projects. As such, their results are consistent with those of Messrs. McCauley and Zimmer, who used a different methodology, but they contrast with the findings of Messrs. Ando and Auerbach, which stem from a third methodology. None of these economists is likely to have the last word. As the world and the Japanese economies change, new factors, some of which receive recognition in the studies discussed above, are threatening to complicate the already complex task of accurately gauging capital costs.

OTHER CONSIDERATIONS

INTERNATIONAL BORROWING AND LENDING

Borrowers and lenders, even if their interaction produces lower capital costs in Japan, may not be able to reproduce their magic overseas. For example, if Japanese manufacturing firms gain an advantage as exporters because of lower capital costs at home, this advantage could disappear for products made by the same Japanese companies in this country. Such companies are subject to U.S. tax rates and depreciation provisions for their onshore production. Even if a manufacturer's debt and equity costs are the same in yen and dollar terms for its American and Japanese factories, the after-tax costs of capital may not be, depending on U.S. and Japanese tax provisions.

In some cases U.S. taxes could be more beneficial to Japanese companies than Japanese provisions. In those instances, however, Japanese firms are limited in their ability to benefit. American subsidiaries of Japanese firms, like their U.S. counterparts in Japan, have to deal with a tax code provision that gives them the worst of both worlds. Washington as well as Tokyo attempts to collect from overseas subsidiaries of domestic firms the difference between their hypothetical tax liability if they were to pay domestic taxes on their overseas business income and what they actually pay the foreign tax authority. (This provision is not a universal practice; French firms, for example, do not face this problem.⁸) As a result, a Japanese manufacturer conceivably could end up sending a check for its U.S. operations to the Internal Revenue Service comparable to the payment an American competitor sends but also have a financial obligation to Japan's National Tax Administration Agency. Unless offset by other advantages, the Japanese subsidiary would face a higher cost of capital than the U.S. firm.

A related argument applies to lenders that expand into overseas markets. Japanese banks that lend to American or Japanese firms subject to U.S. tax laws will not necessarily be able to lend to the companies on terms that will give them the cost of capital enjoyed by firms in Japan. As indicated above, a significant portion of any capital cost advantage enjoyed by Japanese producers is a result of different tax policies in Japan; these advantages are not available to U.S. firms operating in the American market, even if they borrow from a Japanese bank. Therefore, one cannot assume, on the basis of lower capital costs in Japan, that Japanese banks are able to offer better terms on their lending in the United States than American banks.

COVERED VERSUS UNCOVERED INTEREST RATE PARITY

As noted above, nominal interest rates unquestionably are lower in Japan than in the United States and most other countries. Since this is true, why do investors with the ability to invest in the

⁸ For a discussion of this tax provision and other taxation issues involving multinational firms, see Slemrod, Joel, and Kenneth A. Timbers. *Japanese and U.S. Tax Treatment of Their Resident Multinationals: Who Has the Competitive Advantage?* Paper prepared for the Princeton University-Japanese Ministry of Finance Conference on Comparative Tax Policy, Princeton University, April 2-3, 1990.

United States put any of their money into Japan? While some U.S. investments are risky, others, such as Treasury instruments, are very safe. To some experts the fact that nominal interest rates are unequal suggests market imperfections. According to this argument, even though taxes may drive a wedge between borrowing and lending costs—so that Japanese capital costs could be lower than American capital costs—at least a lender's rates of return should be equal across national boundaries if capital markets really are free. Therefore, given that nominal rates differ, capital movements are not free. If Japan's markets were liberalized, this argument concludes, U.S. firms would benefit from lower borrowing costs.

Of course, this argument makes an implicit assumption that the exchange rate does not vary. A Japanese investor would prefer a foreign investment with a relatively high interest rate to a local investment only if he can be sure that the movement between the yen and a foreign currency will not wipe out all of the advantage of the higher return available abroad. This condition, known as covered interest rate parity, suggests that overseas investment makes sense only if the interest rate advantage over a period of time is at least as great as the percentage difference between the current exchange rate and the forward exchange rate. In other words, the investor should be able to buy yen for delivery at a future date at a sufficiently low price to no more than offset the interest rate differential.

Until 1980 or so covered interest rate parity did not hold. Between 1976 and 1980, for example, covered market interest rates on short-term instruments in Japan generally exceeded those in the United States. American investors might have made a killing in Japan by investing in that country and buying forward exchange contracts to cover the possibility of the yen's depreciation. Since 1980 international capital markets have become much more closely linked. As several researchers have found, rejecting the hypothesis of covered interest parity has become increasingly difficult; in other words, exchange rate-adjusted interest rate differentials have narrowed dramatically.⁹

This conclusion suggests that high Japanese savings rates relative to those in the United States matter less than they might otherwise. International capital flows mitigate some of whatever capital cost advantage Japanese firms tend to have because of high savings rates; the flow of funds to the United States raises Japanese interest rates and lowers U.S. ones.

High Japanese savings rates are still an important factor, of course. The covered interest rate parity studies do not consider equity financing, thereby leaving open the possibility that the low apparent cost of equity capital in Japan may be a result partly of the high savings rate. In addition, American policymakers are likely to be concerned that U.S. capital costs are somewhat dependent on a less-than-certain capital flow from abroad.

⁹ Feldman, Robert Alan. *Japanese Financial Markets*. Cambridge, The MIT Press, 1986. p. 182-183; Suzuki, Yoshio. *The Japanese Financial System*. Oxford, Oxford University at the Clarendon Press, 1987. p. 342; and, Osugi, K. *Japan's Experience of Financial Deregulation Since 1984 In An International Perspective*. (BIS Economic Papers No. 26.) Basle, Bank for International Settlements, 1990. p. 59.

MARGINAL VERSUS AVERAGE RATES

Calculations of the cost of capital necessarily are based on past transactions but are used for making decisions about future projects. However, future transactions may not occur on the same terms. For example, a firm expanding rapidly may find that borrowing becomes more expensive the more it borrows, perhaps because the lender feels the borrower is overextending. In addition, a bank that relies on low-cost deposits for most of the funds that it lends also may find that some deposits are attracted only by means of much higher interest rates. In choosing a rate at which to lend for a new project, a rational bank would consider its cost to be the price of obtaining those incremental funds rather than the average cost of all its deposits. Hence, a low average cost of obtaining funds does not necessarily suggest much about the banking industry's willingness to lend at a comparably low rate.

This argument has obvious relevance for comparisons of the cost of capital in the United States and Japan. The conventional explanation concerning the flow of savings into investment in Japan goes as follows: Tokyo sets unusually low interest rates on savings accounts. Japanese individuals nevertheless respond with high savings year after year. Corporations borrow from banks at comparably low rates, giving them an edge in international competition.

Whatever its relevance at one time for explaining Japanese interest rates and the cost of capital, this argument increasingly rings hollow in Japan. According to the Long-Term Credit Bank, 41 percent of commercial bank deposits earned deregulated interest rates as of December 31, 1988, up from 32 percent the year before and 13 percent in 1984. Continuing interest rate liberalization in 1989 suggests that this figure continued to rise. As a result, while many individuals still are receiving below-market interest rates, banks necessarily have to use market-based interest rates in their lending decisions.

To see this conclusion, consider a bank's options. It has to pay a market rate of interest for the additional funds it will need. Were it able to pay a low, regulated rate on new deposits, it would have done so on all existing deposits and there would be no outstanding balance of deposits having unregulated rates.

In Japan, most published rates of interest on savings are an average of market and nonmarket interest rates, even though only the former are relevant to the banking industry's decisions about new lending. In the United States, where interest rates are virtually all deregulated, average rates of interest approximate rates relevant to the decisionmaking process much more closely. Hence, a comparison of average rates showing lower charges for funds in Japan is misleading as a guide to the relative interest burdens facing firms in international competition. To solve this problem comparisons should focus on market-based interest rates in both countries.

This argument also applies to the international activities of Japanese banks. Financial firms, like nonfinancial concerns, almost always regard their international business as marginal to their domestic business. In other words, it is the last to be expanded (in the

case of Japanese banks in the postwar period) and the first to be contracted (U.S. money center banks in the 1980s). For this reason Japanese banks surely will base the cost of funding their overseas lending out of Japanese deposits on the deregulated interest rates they have to pay their local depositors—payments they could avoid if they were to eschew foreign lending. This, in turn, suggests that Japanese banks do not have nearly the advantage in lending in the United States that one would infer based on average interest rates paid in Japan. (To the considerable extent that Japanese banks fund their overseas lending with deposits collected abroad, the low interest rate advantage of Japanese banks further diminishes.)

CONCLUSION

Most studies conclude that Japanese firms have enjoyed a lower cost of capital than American companies, although the results are sensitive to exactly how costs are measured. They also are much less striking than one would estimate by looking at nominal interest rate differences alone. However, to the extent that the relevant capital costs in Japan are lower, many other alleged differences between American and Japanese management disappear. For example, Japanese firms often are accused of buying market share at the expense of profits. A more sophisticated variant of this argument suggests that Japanese competitors invest in market share as a means of obtaining higher profits down the road. Clearly, lower capital costs tend to increase the likelihood that a profit-maximizing firm would take this route. (However, some of the dimensions of capital cost, such as depreciation provisions, would not be relevant to an "investment" in market share, suggesting that a finding of lower capital costs incorporating the effect of depreciation is insufficient to determine that a firm has an advantage that would tempt it to invest in market share.) Conversely, a short-term profit orientation, of which U.S. firms often are accused, could be a result of discounting long-term results more heavily due to higher costs of money. In other words, the studies summarized here suggest the possibility that capital costs, not management philosophies, may be the cause of what appears to be myopia on the part of U.S. firms.

The Bernheim-Shoven results, if they hold up under continued scrutiny, have another important implication for the competition between American and Japanese firms. By most of their measures, capital costs are quite close between American and Japanese firms for relatively riskless projects but far higher for U.S. firms in the case of risky investments. This suggests that Japanese firms have a comparative advantage in risky ventures and U.S. companies in relatively safe ones. Stretching this admittedly tenuous argument to the limit explains why Japanese firms have been willing to tackle markets that at one time seemed remarkably risky, such as the U.S. car market, but it also implies Japanese firms are unlikely to put funds into markets where they expect relatively risk-free, but low, returns. Such markets would be left to American firms that have a comparative advantage in low-risk projects.

Both the McCauley-Zimmer and the Bernheim-Shoven studies underline the sensitivity of the cost of capital to what investors in common stock would require to judge competitiveness with other

investments they might make. By most measures the healthier the stock market, the lower the cost of capital. By this standard the cost of capital in Japan may have shot up dramatically in early 1990 as the Tokyo Stock Exchange plummeted. Some analysts, most of them foreign, have suggested that the stock market in Japan could be in for a prolonged period of sluggish behavior, regardless of what happens to the Japanese economy. If that is so, the cost of capital in Japan will not be nearly as attractive to Japanese companies as it has been during the prolonged bull market, which some analysts reckon lasted 25 years. This will be all the more true if interest rates on borrowed money and other debt remain close to the high levels they have reached in the first half of 1990.

As noted earlier, covered interest rate differentials between the United States and Japan largely disappeared during the 1980s. This implies an equalization of before-tax opportunities for investors. The beginning of the 1990s suggests the possibility that the United States and Japan may face an analogous convergence of after-tax capital costs, with possible implications for long-term management perspectives. Even if this convergence does not occur, Japanese firms increasingly will be at the mercy of foreign tax systems as they expand their operations overseas. For several reasons, then, the cost of capital may well have been an important past factor in explaining behavioral differences between Japanese and American firms, but it is likely to be far less important in the future.

FINANCIAL REFORM, INFLATION, AND MONETARY POLICY IN JAPAN: LESSONS FOR U.S. POLICY

By Thomas F. Cargill ¹

CONTENTS

	Page
Summary	116
Introduction	117
Comparative Financial Reform and Lessons To Be Learned	117
Japan and the United States: Key Players in the Transition of Finance.....	117
Role in World and Pacific Basin Economies	117
Similarities in Financial Regulation.....	118
Differing Macroeconomic Performance.....	118
Financial Reform and External Imbalances	119
International Finance.....	119
Lessons To Be Learned From the Japanese Experience.....	119
Japanese Finance Prior to Transition	121
Degree of Constraints on Financial Transactions.....	121
Objectives of Financial Regulation	122
Structure of Financial Regulation	122
Financial Institutions	123
Negotiated and Open Market Finance.....	124
Financial Systems in Transition.....	125
Catalysts for Financial Reform	126
The Process of Financial Reform	127
Accomplishments.....	128
Constraints on the Reform Process.....	129
Lessons To Be Learned	130
The United States as Scapegoat	130
Monetary Policy and Price Stability	130
Rules vs. Discretion.....	132
Conclusion	134
References	134

SUMMARY

This paper reviews the financial changes which have taken place in Japan since the mid-1970s in comparative perspective with similar changes in the United States. Despite major structural differences between the two economies, U.S. policymakers need to more clearly understand the financial reform process taking place in Japan.

There are two major lessons to be learned from the Japanese experience. First, U.S. policy should recognize the natural forces changing Japan's financial system and deemphasize arguments that external imbalances can be corrected by specific financial liberalization efforts in Japan. Second, U.S. policy should recognize

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the importance of the Bank of Japan's focus on price stability since 1973 in accounting for Japan's less disruptive financial transition and more stable macroeconomic environment. The Bank of Japan in the late 1980s became one of the most credible of central banks. Federal Reserve policy needs to focus clearly on long run price stability.

INTRODUCTION

This paper focuses on the financial changes taking place in Japan from a comparative perspective and draws lessons from the Japanese experience for the United States.² The experiences of Japan and the United States reflect an international phenomenon in which financial structures in a wide range of developed and developing countries are in transition from rigidly regulated and administratively controlled to more flexible and internationally open structures.³ Japan and the United States, however, are key players in this process.

The remainder of the paper is composed of five sections. The reasons for focusing on Japan and the United States are explained in section II as well as why the Japanese experience offers some lessons for the United States. Section III outlines the financial structures of Japan prior to the initiation of financial change and notes major differences from the U.S. financial structure. Section IV considers the sources of financial change in Japan, the characteristics of the process of financial change, the results of the process, and the constraints on the process. Each of these characteristics of the reform process is considered in comparative perspective with the United States. Section V considers several issues with respect to future financial change in both Japan and the United States, while section VI draws some implications from the Japanese experience for the United States. A short concluding section ends the paper.

COMPARATIVE FINANCIAL REFORM AND LESSONS TO BE LEARNED

JAPAN AND THE UNITED STATES: KEY PLAYERS IN THE TRANSITION OF FINANCE

The financial experiences of Japan and the United States are not chosen at random nor for intellectual curiosity as merely two case studies. Five general considerations suggest a detailed analysis of these two countries.

Role in World and Pacific Basin Economies

Japan and the United States are the second and first largest economies in the world in terms of real GNP, respectively. They rank near the top in international trade and finance, though in a

² Part of the second section and the third and fourth sections are drawn from Cargill (1985, 1986a, 1986b, 1989a, 1989b, and 1990) and Cargill and Royama (1988 and 1990). Other discussions of financial reform in Japan, though not from a comparative perspective, can be found in Feldman (1986), Royama (1983/84), Rosenbluth (1989), and Suzuki (1986 and 1988).

³ See: Akhtar, M.A. *Financial Innovation and Their Implications for Monetary Policy: An International Perspective*. Basle, Switzerland, Bank for International Settlements, December 1983; Cheng, Hang-Sheng, ed. *Financial Policy and Reform in Pacific Basin Countries*. Lexington, Mass., D.C. Heath and Co., 1986; and, Suzuki, Yoshio, and Hiroshi Yomo, eds. *Financial Innovation and Monetary Policy: Asia and the West*. Tokyo, University of Tokyo Press, 1986.

different and fundamentally changing manner. At a more regional level, Japan and the United States have a close historical, cultural, and economic relationship with the Pacific Basin region—a region which has exhibited impressive economic gains in the past decade and has the potential of becoming the major growth center of the world in the 21st century.

Similarities in Financial Regulation

Prior to the start of financial reform, both countries imposed a variety of regulatory constraints on the financial system that limited portfolio behavior, segmented financial institutions and markets, channelled credit into favored sectors via implicit and explicit credit allocation controls, and limited interest rate movements on deposits and loans. These constraints were imposed for different reasons in each country and were far more binding in Japan than in the United States; for example, virtually all interest rates were regulated in Japan and regulations restricted international capital movements. Despite the differing degrees of restriction on competitive forces, however, both financial systems limited the role of competitive forces in the allocation of credit.

Differing Macroeconomic Performance

Four aspects of the relative macroeconomic performance of the Japanese and U.S. economies since 1975 are revealed by figures 1 through 4 which clearly illustrate the differing macroeconomic performances. The first two figures show that monetary growth and hence inflation in Japan, have been more stable than in the United States. The second two figures show that Japan has experienced a smaller degree of disruption in the real and financial sectors as reflected by the unemployment rate and the gap between unregulated and regulated interest rates.⁴

Some investigators have concluded that the major reason for the differing macroeconomic performances resides in each country's monetary policy.⁵ Monetary policy since the mid-1970s in Japan has been consistent and creditable in pursuing anti-inflation policies, while in contrast, monetary policy in the United States during the 1970s was clearly inflationary and until only recently, has the Federal Reserve re-established a credible reputation for stable and noninflationary monetary policy.⁶

⁴ Unregulated and regulated interest rates in Japan are measured as the long-term secondary bond rate and the one year time deposit rate, respectively. In the United States, unregulated and regulated interest rates are measured as the three-month Treasury bill rate and the Regulation Q ceiling on commercial bank saving deposits, respectively.

⁵ For discussion and references on this point, see Cargill, Thomas F. *Central Bank Independence and Regulatory Responsibilities: the Bank of Japan and the Federal Reserve Bank*. New York, Salomon Brothers Center for the Study of Financial Institutions, New York University, 1989; and, Cargill, Thomas F., and Michael M. Hutchison. *The Bank of Japan's Response to Macroeconomic and Financial Change*. In Cheng, Hang-Sheng, ed. *Monetary Policy in Pacific Basin Countries*. Norwell, Mass., Kluwer Academic Publishers, 1988.

⁶ Judd, John P. *Rules and Monetary Policy*. Federal Reserve Bank of San Francisco. *Weekly Letter*, July 7, 1989.

Financial Reform and External Imbalances

The United States has focused on several aspects of the reform process in Japan as part of a broader objective of reducing large external deficits. Specifically, the United States has encouraged Japan to increase the pace of financial liberalization, to increase access to foreign financial institutions, and to "internationalize" the yen by making the yen a more attractive international reserve and investment asset.⁷ The U.S. argued that prior to 1985 Japan's rigid financial system kept the yen at a low value and thus contributed to Japan's trade and current account surpluses. In 1986, the United States pressured Japan to increase domestic demand by encouraging increased consumer and mortgage credit. Despite the wisdom of these policies,⁸ they clearly illustrate the important role financial reform issues have occupied in the dialogue over the massive external imbalances of the 1980s.

International Finance

The United States plays the key role in the international financial system; however, Japan has dramatically increased its presence and is likely to become an even more important element of an increasingly integrated world financial system for the following reasons: (1) Japan's current account surpluses since the mid-1970s have rendered Japan the world's largest creditor nation as of 1985; (2) financial liberalization in the mid-1970s first focused on domestic finance; however, by 1980 significant progress was being made to relax and eliminate restrictions on international capital flows; (3) Japanese banks have aggressively pursued international markets to offset declining domestic markets; and (4) Japanese banks have a comparative advantage in world finance because of relatively lower cost of funds.

LESSONS TO BE LEARNED FROM THE JAPANESE EXPERIENCE

At first glance one could argue that the United States has little to learn from the Japanese experience because of the obvious differences in economic structure, policy objectives, and a wide variety of other differences between the two economies. This is a short sighted view for several reasons.

The Japanese economy has undergone significant structural changes over the past two decades that in relative terms have been far more significant than in the United States. Japan has experienced a major downward shift in the natural growth path of the economy after 1973, major shifts after 1975 in established flow of funds patterns between the corporate and government sectors, regulatory and market financial innovations, and increased interaction between domestic and international finance. Japan has also experienced several major external shocks such as the two oil price shocks, shift to a floating exchange rate regime after 1973, and a

⁷ Frankel, Jeffrey A. *The Yen/Dollar Agreement: Liberalizing Japanese Capital Markets*. Washington, Institute for International Economics, 1984.

⁸ Cargill, Thomas F. A Perspective on Trade Imbalances and United States Policies Toward Japan. *Columbia Journal of World Business*, no. 12, Winter 1987. p. 55-60.

FIGURE 1: QUARTERLY MONETARY GROWTH RATES

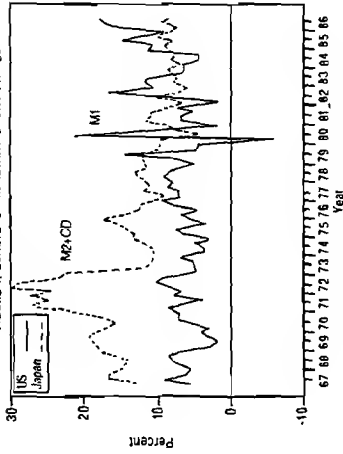


FIGURE 3: QUARTERLY UNEMPLOYMENT RATES

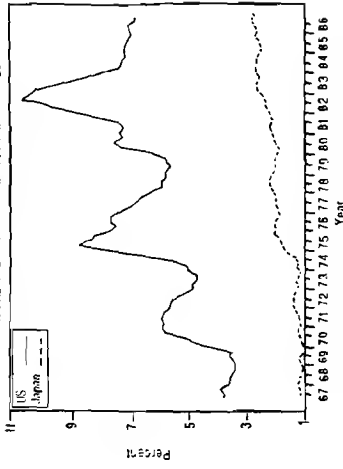


FIGURE 2: QUARTERLY INFLATION (GDP DEFLATOR)

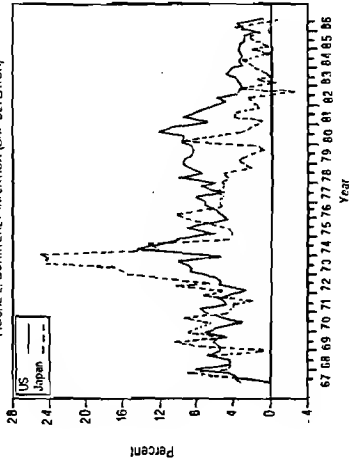
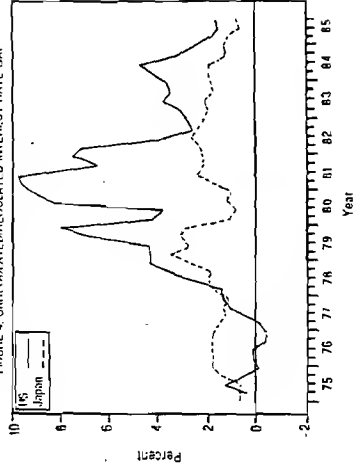


FIGURE 4: UNEQUALIZED UNREGULATED INTEREST RATE GAP



Source: Based on data provided by the Bank of Japan.

variety of political pressures from the United States directed toward trade, financial, and macroeconomic policies.

Despite this environment, Japan has achieved a record of macroeconomic performance that is unequalled among the industrialized countries with the exception of West Germany. Japan effectively stabilized domestic inflation in the early 1970s and since then has maintained a successful price stabilization policy that has earned the Bank of Japan the reputation as the world's most credible central bank along with the Bundesbank.⁹ The results of this successful price stabilization policy have been significant. Japan has achieved a steady and sustained real growth rate in the 3 to 5 percent range and avoided recession in the face of significant domestic changes in financial structure and external shocks.

In regard to financial liberalization, Japan has achieved a major restructuring of financial arrangements without the type and degree of financial disruptions that characterized the U.S. experience in the 1970s and early 1980s. The primary reason for a less disruptive financial reform process can be found in the differing inflation records of Japan and the United States.¹⁰ The willingness of the Bank of Japan to adhere to a price stabilization policy and the failures of U.S. financial reform in the past, in an important manner, can be attributed to the failures of Federal Reserve policy in the 1970s to maintain price stability.

It is important for the United States to understand the reasons for Japan's relatively more effective and credible central bank policy, which in turn, have provided a more conducive environment for financial liberalization.

JAPANESE FINANCE PRIOR TO TRANSITION

The transition of finance in Japan and the United States started sometime in the mid-1970s depending on whether one focuses on regulatory or market innovations as the major driving force for financial change. There were and remain a number of important differences, however. These are: (1) degree of restrictions on the financial system; (2) objectives of financial regulation; (3) structure of financial regulation; (4) relative roles of direct and indirect finance; and (5) relative roles of negotiated and open-market transactions. Each of these will be briefly discussed.

DEGREE OF CONSTRAINTS ON FINANCIAL TRANSACTIONS

Financial regulation in Japan restricted market forces to a greater extent than in the United States judged by any reasonable standard. Almost all interest rates in Japan were regulated while in the United States, only deposits and selected loans in intermediation financial markets were regulated. International capital flows were restricted in Japan, while in the United States, foreign financial institutions and other forms of capital flow were relatively unrestricted.

⁹ Judd, Rules and Monetary Policy.

¹⁰ Cargill, Thomas F., and Shoichi Royama. *The Transition of Finance in Japan and the United States: A Comparative Perspective*. Stanford, California, Hoover Institution Press, 1988.

Historically, Japan has always restricted financial transactions while in contrast, U.S. financial markets and institutions were first subject to extensive regulatory constraints in the 1930s.¹¹ These constraints were imposed on the financial system in the then widely held view that unregulated financial institutions and markets were inherently unstable, because in this environment, banks had an incentive to assume imprudent levels of risk and to expose the financial system to contagion. The financial reforms passed in the wake of the collapse of the banking system in the mid-1930s was a major shift in the role of government financial regulation. In contrast, Japan's financial system had always been subject to binding regulation; however, the regulations were more often imposed by the market participants themselves to limit competition with the explicit approval of government.¹²

OBJECTIVES OF FINANCIAL REGULATION

In the United States much of the financial regulation since it emerged in the wake of the 1930s banking collapse was designed to limit what were then perceived to be unsound banking practices thought to encourage the adoption of risky loan and investment strategies. Financial regulation was also used as an instrument to encourage a greater flow of credit into housing in the hope of making homeownership possible for all American households. Financial regulation has been as much consumer oriented as pro-business; for example, deposit rate ceilings and usuary laws were often rationalized on the basis of maintaining low interest rates on consumer and mortgage credit.

These factors offer little insight into the objectives of financial regulation in Japan. Financial regulation in Japan prior to the start of liberalization was the result of a long and fairly continuous historical process that can be traced back to the first efforts to establish a modern financial system after the Meiji Restoration in 1868. While Japan experienced a banking collapse in the late 1920s, it did not play nearly the dramatic role in shaping financial regulation as the collapse of the banking system in the early 1930s did in the United States. In the postwar period, Japan's financial system was designed and regulated to encourage industrialization, export-led economic growth, international isolation of domestic finance, and a high household saving rate. Specifically, the system was designed and regulated to transfer the large surplus of the household sector to the corporate sector. In this regard, financial regulation was clearly pro-business oriented in Japan.

STRUCTURE OF FINANCIAL REGULATION

Japan possesses a unified regulatory structure that defines and enforces regulation primarily by a process of "administrative guidance." In contrast, the United States possesses a multiplicity of

¹¹ Cargill, Thomas F., and Gillian G. Garcia. *Financial Reform in the 1980s*. Stanford, California, Hoover Institution Press, 1985.

¹² Cargill, Thomas F., and Shoichi Royama. *The Evolution of Japanese Banking and Finance*. In Kaufman, George, ed. *Banking Structures in Major Countries*. Norwell, Mass., Kluwer Academic Publishers, forthcoming.

regulatory authorities that rely on explicit law and court interpretations of law to define and enforce regulation.

The Ministry of Finance or MOF is the primary financial regulatory authority and by U.S. standards, is an all encompassing governmental entity composed of seven bureaus. The MOF combines the functions of the U.S. Treasury, Office of Management and Budget, Internal Revenue Service, Securities and Exchange Commission, Commodities Futures Trading Commission, Office of the Comptroller of the Currency, activities of the Justice Department related to the financial system, activities of the Federal Trade Commission related to the financial system, all of the state banking and insurance regulators, supervisory functions of the Federal Reserve, Federal Deposit Insurance Corporation, Office of Thrift Supervision, National Credit Union Administration, and state credit union regulatory agencies. The MOF's influence over the domestic and international financial system is thus pervasive and there exists no counterpart to the MOF in the United States.

The extent of the MOF's power is reflected by Article 26 of the Banking Law: "When the Minister of Finance deems it necessary in the light of a bank's business situation or financial position, he may direct that it be enjoined from conducting business in whole or in part, transfer its property to the competent authorities, or take any other necessary measures." The same power is granted the MOF for almost every other sector of the financial system.

The MOF sets and ensures maintenance of the regulatory parameters by a process referred to as "administrative guidance" which enhances its power of control far beyond that suggested by the formal legal parameters. The administrative guidance of the MOF involves interpretations of existing laws and regulations conveyed to the concerned parties most frequently in a verbal form, but sometimes in a written form. Noncompliance by market participants is unlikely because they cannot easily "shop" for a more favorable set of regulations as they can in the United States and they fully recognize that they will require MOF permission and support for continued operation.

The MOF, however, does not have complete regulatory control and must share regulatory power in some areas with the BOJ and the Ministry of Posts and Telecommunications (MPT), which is responsible for the Postal Savings System (PSS). Despite this qualification however, the MOF is the primary financial regulatory authority in Japan. Even in those areas for which the MOF does not officially hold complete regulatory responsibility, BOJ or MPT actions require tacit MOF concurrence.

FINANCIAL INSTITUTIONS

Indirect or intermediation finance dominated the flow of funds prior to the initiation of financial reform. Intermediation finance via private and public financial institutions accounted for 91.6 percent of the total flow of funds to nonfinancial borrowers compared to 76.3 percent for the United States over the period from 1970 to 1975. While Japanese public financial institutions played a larger role in the flow of intermediation credit than has been the case in the United States, private banks dominated the flow of intermedia-

tion credit accounting for 60.9 percent of the flow of funds compared to 31.3 percent for the United States.

Intermediation finance has declined in importance during the past decade and the forces for further decline are firmly in place; however, it continues to be the most important conduit for transferring funds from lenders to borrowers. Over the period 1980-1985, 87.4 percent of the total flow of funds to nonfinancial borrowers was transferred through banks, other private financial institutions, and public financial institutions.

Intermediation finance is carried out by 13 city banks, about 130 regional banks, 3 long-run credit banks, 7 trust banks, several hundred specialized financial institutions, and several public financial institutions. The PSS is the largest of the public financial institutions. In fact, it is the largest financial institution in the world with deposits of over \$600 billion.

NEGOTIATED AND OPEN MARKET FINANCE

The importance of intermediation finance is also reflected by the relative importance of negotiated debt instruments as opposed to open-market debt instruments. Negotiated debt transactions are "customer relationship" oriented, multi-dimensional in terms of the services provided, long term, and frequently implicit rather than explicit. In negotiated transactions the actual transfer of funds and the price at which funds are exchanged represent only two specific aspects of the relationship between borrower and lender. In contrast, open market transactions are essentially defined by price and quantity, limited in terms of the services provided as part of the borrower-lender relationship, short term, and are frequently explicit rather than implicit. Based on a flow of fund analysis in Cargill and Royama (1988, Chapter 2), 79.6 percent of funds provided were based on negotiated as opposed to open-market type debt instruments over the period from 1970 through 1975. In contrast, open market debt instruments accounted for 78.2 percent of the flow of funds over the same period in the United States. While the overall role of negotiated debt instruments has declined in recent years, they still dominate the flow of funds in Japan.

The role of intermediation finance and a preference for negotiated transactions reflect a major structural difference between Japan and the United States. Japanese economic institutions are designed to reduce uncertainty and to emphasize long-run considerations through collective action, and as a result, negotiated long-term relationships are highly valued. In addition, unlike the United States, Japan does not have a tradition against centralization and cartel-like institutions. The financial system clearly reflects these characteristics in two ways: dominance of negotiated over open-market debt and the role played by the main bank system or *keiretsu* (affiliations of firms) in Japan's financial and industrial structure. Both characteristics reflect Japan's reliance on customer relationships as a common denominator for both real and financial transactions.

The main bank system is composed of groups of firms in which a city bank assumes the leadership role; hence, the term main bank system. Intragroup firm relationships are based on mutually ad-

vantageous product and service interactions and are solidified by reciprocal equity and borrower relationships. Japanese banks are permitted to hold limited amounts of corporate equities as part of their own portfolio. The main bank system has no counterpart in the United States and its role in the industrial structure has been singled out as an important foundation of Japan's impressive growth record since the Occupation ended in the early 1950s.¹³ Financial liberalization has weakened the foundation of the main bank system in the past decade as additional funding sources have become available;¹⁴ however, it continues to be a prominent part of Japanese finance.

There has been a tendency for outside observers to view Japan's highly regulated and controlled financial system as part of an overall government effort to direct credit to selected sectors of the economy. That is, the financial system and financial regulation reflect what might be called the "Japan, Inc" view. This is an incorrect characterization for several reasons. First, the institutional structure of Japan's financial system (limited money and capital markets, segmented intermediation finance, etc.) reflect a continuation of pre-World War II trends and institutions.¹⁵ Second, explicit government regulation is only a recent development. Japanese financial markets and institutions have always been subject to binding constraints; however, these were frequently self-imposed by cartel-like market structures which received tacit approval by governmental authorities. Third, while there exists considerable exchange of information between private financial institutions and governmental entities, the allocation of credit was not explicitly government directed. Fourth, while public financial institutions have played a more important role in the flow of funds than in other countries, they have not been important in financing the more productive sectors of the Japanese economy. Fifth, while competitive forces were constrained in Japan, nonprice competition for market share among financial institutions has been intense at times.

FINANCIAL SYSTEMS IN TRANSITION

The financial structures of Japan and the United States thus differed in a number of important respects even though both provided the same function to the economy—the transfer of funds from ultimate lenders to ultimate borrowers. During much of the post-WW II period, both financial structures functioned in a satisfactory manner and accommodated sustained economic growth. They were fairly efficient, adaptable, and sound and seemed to meet the specific needs of each country's national policies. Starting in the late 1960s and early 1970s however, the economic environment changed in both countries and rendered existing financial arrangements inefficient, and in the United States, ultimately unstable. The basic problem emerged from a conflict between a financial structure that

¹³ Elston, C.D. The Financing of Japanese Industry. Bank of England. *Quarterly Bulletin*, December 1981. p. 510-518.

¹⁴ Horiuchi, Akiyoshi, and Frank Packer. *The Function of Financial Institutions: What Role has the "Main Bank" Played in Japan?* Tokyo, Tokyo University, December 1986.

¹⁵ Hamada, Koichi, and Akiyoshi Horiuchi. The Political Economy of the Financial Market. In Yamamura, Kozo, and Yasukichi Yasuba, eds. *The Political Economy of Japan, The Domestic Transformation*. Stanford, Calif., Stanford University Press, 1987.

limited flexibility and a changing economic and technological environment that demanded greater flexibility. The pressures for change first emerged in the United States in the mid-1960s while in Japan the pressures did not become obvious until the mid-1970s.

The new environment facing each country was characterized by oil-price shocks, inflation, high and unstable interest rates, changes in established flow of funds patterns, advances in computer and telecommunications technology, and a shift from a fixed to a floating exchange rate system. Japan and the United States experienced all of these changes to some extent; however, specific changes in the economic and technological environment had differential effects on each country.

In response to the new environment, market and regulatory innovations took place in each country that were designed to give market forces more freedom in allocating funds between lenders and borrowers. In the broad perspective of financial liberalization, the process of reform consists of two components: government innovations and market innovations. Government innovations are reflected by law and administrative decree such as the 1980 Deregulation and Monetary Control Act in the United States and the 1976 decision of the MOF to officially recognize the *gensaki* or repurchase market for government securities. Market innovations designed to circumvent regulatory constraints that limit profit pressure regulatory authorities to change the structure of the system and frequently provide that path that financial reform should take to most benefit the public.

The financial changes taking place in Japan and the United States can be considered from the following perspectives: the catalyst for reform; the characteristics of the process itself; the results of the process; constraints on the process and remaining issues to be addressed by the process.

CATALYSTS FOR FINANCIAL REFORM

In the United States, financial reform emerged as a result of the conflict between the existing structure of financial regulation and the failure of the Federal Reserve to contain inflation pressures during the 1970s, especially in the late 1970s. Overly expansionary monetary policy during the 1970s produced successively more serious bursts of inflation as the decade progressed. Interest rates increased to historically high levels as a result and rendered much of the existing financial regulation, especially Regulation Q deposits rate ceilings, increasingly burdensome. At the same time, high and volatile interest rates exposed depository institutions, especially thrifts, to new and unexpected risks that had not been present in the low-inflation period.

In Japan, the situation was quite different. The primary catalyst for financial reform emerged in the "real" sector of the economy. The BOJ had effectively brought inflation under control by the time financial change occurred in Japan. The oil price increases in 1973-74 brought an end to rapid economic growth in the 1960s referred to as the High Growth Period. Real GNP growth declined from the 8-12 percent range to the 3-5 percent range. The sudden end of rapid economic growth had a profound impact on estab-

lished flow of funds in Japan. In particular, the central government and hence the public sector began to run large deficits after 1975. The ensuing large volume of government debt caused mounting market resistance to the policy of requiring financial institutions to absorb the debt at below-market yields. As a result, the MOF was forced to make a number of concessions, and increasingly, government debt practices came to reflect market forces.

At the same time Japanese banks became advocates of liberalization because they saw expanded portfolio powers as a method to restore market share that had been lost in the slower growth environment. Corporations had relied almost exclusively on bank credit prior to 1975; however, in the slower growth environment they reduced their need for credit. In addition, corporations became advocates of liberalization because they saw that new types of financial assets could provide them with new profit opportunities at the very time their liquidity increased. As a result of reduced reliance on bank credit, corporations found that they no longer needed to maintain large "compensating" balances at banks.

The household sector which continued to provide a large volume of savings to the financial system, no longer was willing to invest those savings in a limited set of financial assets at below-market regulated yields. In the past, high real income growth had compensated the household sector for the limited choice set of financial assets. Despite the support for a more liberated financial system by the household sector, however, it was the banks, corporations, and other elements of the financial system that had the political influence to change MOF regulations.

Thus, the slowdown in economic growth and its associated impact on established flow of funds patterns was the primary catalyst for financial change in Japan, and once liberalization started, it acquired its own momentum. Other forces were also important such as the shift to a floating exchange rate after 1973 and U.S. pressure in the early 1980s, but these did not exert the same impact as the slowdown in economic growth.

THE PROCESS OF FINANCIAL REFORM

There are four differences between the U.S. and Japanese regulatory responses to the catalysts for reform. First, Japan's financial regulation is defined and enforced by administrative decree rather than by explicit law or the codification of regulations. Japan has thus not embodied its reform in major legislative actions and as an administratively directed process, it has been more difficult for outsiders to monitor.

Second, significant regulatory reforms often occur only in a crisis environment where there is a pressing and obvious need for change. A review of financial history suggests that this is especially true in the United States. The two most significant periods of reform in the U.S. financial system occurred in the 1930s and 1980s following a period of financial and monetary crisis. This crisis-reaction scenario does not easily fit Japan's case. The one major instance of intense incompatibility between the structure of financial regulation and the economic environment caused by the high inflation rate in the early 1970s, was overcome by slower monetary

growth before financial liberalization became an ongoing process. In the absence of a crisis environment, Japanese liberalization has proceeded in a more continuous and less discrete form than U.S. reform. It has permitted Japan to adopt a gradual approach that would have been difficult to achieve in the context of the U.S. situation.

The third difference concerns how the regulatory structure itself influences the process of financial reform. The U.S. situation is characterized by a multiplicity of regulatory authorities at the federal level and a dualistic regulatory structure in which depository institutions operate under either a state or national charter. These characteristics widen the range for financial innovation as market participants "shop" for the most favorable set of regulations.

Japan does not possess a multiplicity of regulatory authorities or dualistic regulatory structure. Its more unified structure make it less likely that market participants in Japan would be willing to create financial assets and services that circumvent the intent of regulation. Reliance on administrative guidance also reduces the potential range of financial innovation since it limits the type of loop-hole mining common in the U.S. financial environment.

Fourth, there are other more important reasons for less aggressive market innovation in Japan and herein lies a major difference between Japan and the United States. The willingness of the BOJ to focus on long-run price stability has narrowed the gap between regulated and unregulated interest rates, thus, reducing incentives to innovate and circumvent existing regulation. Combined with an overall higher level of regulatory credibility and shorter regulatory active lag than has been the case in the United States, market participants have less incentive to engage in direct conflicts with the regulatory authorities. As a consequence, Japan has avoided the types of financial disruptions witnessed in the United States in the 1970s and early 1980s.

ACCOMPLISHMENTS

There is no doubt that Japanese finance has significantly changed over the past two decades. It is far more competitive, open, and flexible than previously. At the same time, Japan's financial system comes nowhere close to matching the competitiveness of the U.S. financial system. Deposit interest rates remain regulated on the majority of deposits, financial institutions are confined to segmented markets, and open corporate bond markets have been slow to develop. Japan continues to lack a competitive short-term government securities market, a financial disclosure framework, and has generally been unresponsive to consumer oriented issues such as truth in lending, removal of ceilings on small deposits, greater consumer access to the financial system, etc.

U.S. financial reform has accomplished many of its original objectives. Specifically, the end of deposit ceilings (with the exception of the zero rate ceiling on demand deposits) in 1986 ended the disruptive periods of disintermediation. Consumers of financial services now have a wider choice set than previously and market forces play a more important role in pricing those financial services. At the same time, constraints on competitive forces remain such as

the zero deposit rate ceiling on demand deposits and regulatory virtual monopoly afforded the banking system in issuing demand deposits. More seriously however, the U.S. financial system is plagued with a serious thrift problem that continues to raise questions about the underlying stability of the financial system.

CONSTRAINTS ON THE REFORM PROCESS

In the United States the social commitment to encourage mortgage lender has been weakened by reform but not broken. Although adjustable rate mortgages are now common and thrifts have been given powers to diversify, maintaining a large flow of funds into mortgage financing remains an important policy objective. As long as mortgage credit retains a privileged position in the U.S. financial system, competitive financial conditions will not be realized.

At a more serious level, there persists a fundamental flaw in the reform process in the United States. There is a conflict between opportunities to assume risk and incentives to assume risk. The moral hazard problem of government deposit guarantees and regulatory laxity in dealing with troubled financial institutions, combined with regulatory and market innovations that enhance opportunities to assume risk, present a serious moral hazard problem for the United States. Though this problem has been increasingly recognized in dealing with the large numbers of insolvent thrift institutions, the reform process has not yet balanced government incentives to assume risk with opportunities to assume risk.

A slow pace of financial innovation would likely have reduced the severity of the problem now faced in the United States;¹⁶ however, high inflation in the 1970s provided intense incentives for rapid and conflict-seeking innovation.¹⁷ This in turn generate crisis-oriented regulatory reforms that in hindsight may not have fully recognized the conflict between incentives and opportunities to assume risk.

In contrast, Japan has not faced either type of constraint; however, financial liberalization is constrained by the large role played by government financial institutions, especially the PSS. Government institutions provide about 25 percent of the flow of funds to nonfinancial borrowers. PSS deposits had significant tax advantages prior to the Tax Reform Act of 1986 and continue to have other advantages that have generated intense debate with banks and the BOJ. Banks claim that PSS deposits compete unfairly with bank deposits and advocate bringing PSS deposit rates in line with bank deposit rates. The BOJ advocates interest rate liberalization and an end to differential deposit rate regulation in order to provide a more conducive environment for monetary policy. The MOF has been reluctant to decide the issue because of divided interests. While as a regulatory authority it represents the banking system, the PSS deposits are directly transferred to the MOF's Trust Fund Bureau.

¹⁶ Kane, Edward J. *The S&L Insurance Mess: How Did It Happen?* Washington, The Urban Institute Press, 1989.

¹⁷ Kane, Edward J. Accelerating Inflation, Technological Innovation and the Decreasing Effectiveness of Banking Regulation. *Journal of Finance*, no. 36, May 1981. p. 355-367.

LESSONS TO BE LEARNED

There are two lessons to be learned from a greater understanding of financial liberalization in Japan. One relates to misunderstandings on the part of the United States about the fundamental forces of change in Japan and as a result the willingness to be placed in a scapegoat position by Japanese policy makers. The other relates to the advantages of price stability and the need for the Federal Reserve to maintain credibility as an inflation fighter and to resist the political pressures to "keep interest rates low" or "to maintain economic growth" and sacrifice the goal of long run price stability.

THE UNITED STATES AS SCAPEGOAT

Hugh Patrick ¹⁸ was one of the first to warn U.S. policy makers not to be placed in the position of scapegoat for fundamental changes that were naturally taking place in Japan. Specifically, financial liberalization was well in place before the U.S. Treasury/MOF discussions in 1984. U.S. pressure did not achieve great success in changing the direction of Japanese liberalization, nor did it have a meaningful impact on external imbalances; however, it did make it easier for Japanese regulatory authorities to permit changes that disrupted established domestic markets since changes could always be rationalized as the result of "U.S. pressure."

In this process the United States lost credibility as a major economic superpower. Failure to consider it's own macroeconomic performance as a cause of the external deficits and to advance dubious arguments for the need for greater Japanese effort to liberalize illustrated three facts: (1) U.S. policy failed to understand the forces for change already in place in Japan; (2) U.S. policy wasted valuable political goodwill in pressuring Japan to implement a process already in place; and (3) U.S. policy based on placing responsibility for external deficits rather than adopting a more balanced view reduced U.S. influence as a world economic leader.

Thus, the U.S. policy needs to more fully understand the forces for financial change in Japan and while less public pressure might usefully encourage Japanese liberalization, the type of open and less than carefully thought out policies of the 1980s had minimal effects and wasted important political goodwill. This seriously jeopardized the effectiveness of U.S. policy in others areas.

MONETARY POLICY AND PRICE STABILITY

Price stability and central bank credibility are critically important and nowhere has this been more evident than in Japan. Much of the financial dislocation in the United States during the 1970s and early 1980s and the thrift problem itself can be directly traced to the failure of the Federal Reserve to restrain inflation over the 1965-1980 period. Claims that the Federal Reserve lost control over the money supply or inflation was largely nonmonetary in origin find little or no empirical support.

¹⁸ Patrick, Hugh. Comment. In Agmon, Tamir, Robert G. Hawkins, and Richard M. Levich, eds. *The Future of the International Monetary System*. Lexington, Mass., D.C. Heath and Co., 1984. p. 186-193.

In 1980 Federal Reserve policy came to recognize the importance of credibility and price stability and by the second half of the 1980s achieved a level of credibility not enjoyed for some time. It effectively functioned as a lender of last resort during the large CD withdrawals at Continental Illinois Bank in 1984 and during the 1987 stock market crash. It reduced inflation by 1983 and has maintained low inflation through the end of the 1980s. While Federal Reserve bashing continues, especially over a late 1982 decision to return to an interest rate smoothing procedure, the Federal Reserve continues to enjoy the reputation as a central bank concerned with price stability. Economists have focused on the role of reputation and credibility in recent years as an important component to successful monetary policy. Alex Cukierman and Allan Meltzer,¹⁹ for example, have developed a model that defines credibility as the speed with which the public recognizes that a change in policy has occurred and thus adjusts its economic contracts to this policy. In this respect, a central bank can control inflation with minimal adverse output and employment effects. There is no doubt the leadership qualities of Paul Volcker in the early 1980s supported by a sharply restrictive monetary policy convinced market participants the Federal Reserve was finally serious about controlling inflation. The continuation of low inflation throughout the decade has reinforced this attitude.

Reputation and credibility appear to be more important than whether the central bank conducts monetary policy with an interest rate or money focus. That is, the technical features of central bank policy play a secondary role to central bank willingness to control inflation. The BOJ, for example, has employed an operating procedure focused on interest rates not much different than the procedures used by the Federal Reserve during the 1970s.

It is critically important for the Federal Reserve to remain committed to price stability. The 1970s and early 1980s attest to the adverse effects of failing to achieve stable and low inflation. In this regard, there are two questions that need consideration: (1) does the Federal Reserve's inherent bias toward interest rates in the short run jeopardize its commitment to long run price stability and (2) are structural reforms needed to ensure the Federal Reserve remains focused on long run price stability?

There is no doubt the Federal Reserve has returned to an interest rate focused policy. Though analytically different than the federal funds targeting procedure of the 1970s, the current operating procedure generates similar interest rate behavior. Some economists have criticized the Federal Reserve for returning to a type of policy that in the 1970s was partly responsible for permitting inflationary monetary growth. The critics, however, have to admit that inflation has been stable in the United States despite the Federal Reserve's interest rate focus. Despite technical problems and inherent inflationary biases embedded in an interest rate focused policy, the past few years suggests that current operating procedures are consistent with price stability. Ultimately, stable noninflationary

¹⁹ Cukierman, Alex, and Allan H. Meltzer. A Theory of Ambiguity, Credibility and Inflation Under Discretion and Asymmetric Information. *Econometrica*, no. 54, September 1986. p. 1091-xx.

monetary growth is the expected outcome of a price stability policy since inflation is a monetary phenomenon in the long run. In this regard, the BOJ has achieved price stability with a nonmonetarist operating procedure.

At the same time fundamental differences between the Federal Reserve and the BOJ make it premature to assume the Federal Reserve will continue to earn the reputation as price stabilization central bank.²⁰ In fact, issues can be raised about the ability of the BOJ to continue their commitment to low inflation; however, the issues are more serious for Federal Reserve policy. The Federal Reserve has a relatively recent history (since late 1979) of being willing to adhere to a price stabilization goal. In this regard, two considerations come to mind: (1) rules versus discretion and (2) independence of the Federal Reserve from government.

RULES VS. DISCRETION

Economists have raised serious questions about the ability of discretionary monetary policy to consistently adhere to price stability. E. Finn Kydland and Edward C. Prescott in 1977 argued²¹ that discretionary policy is subject to a time inconsistency problem. They provided a formal demonstration of arguments made by Milton Friedman in the 1950s about the adverse effects of discretionary policy compared to rules.²² Time inconsistency means the long run goal of price stability becomes less optimal at any period when period by period decisions define how monetary policy will be conducted until the next period. A rule such as constant monetary growth, constant high power monetary growth, etc. is more likely to generate a more consistent dynamic process period by period that ensures price stability. A rule is not subject to time inconsistency because it does not permit special circumstances at each period to induce a deviation from the long run goal. Actions at any period are anchored to the long run objective defined by the rule.

The time inconsistency problem is real and represents a serious problem for the type of monetary policy practiced by almost all central banks; however, a central bank's concern with price stability and its concern for maintaining a reputation for noninflationary monetary policy can offset many of the theoretical problems raised by time inconsistency. Nonetheless, a potential problem is always present whenever discretionary policy is in place—what seems optimal in the long run may be less than optimal in the short run.

The Federal Reserve's record of monetary policy since 1913 is not one of high achievement. The Federal Reserve has changed policies so frequently that it is difficult to keep track of the different operating procedures: real bills in the 1920s and 1930s, "feel and tone" of the money market and the free reserve concept in the 1950s, Federal funds targets in the 1960s and 1970s, monetary aggregate targets from 1979 to 1982, and currently, a borrowed reserve targeting strategy. Along with variation in operating procedures, the

²⁰ Cargill, *Central Bank Independence and Regulatory Responsibilities*.

²¹ Kydland, E. Finn, and Edward C. Prescott. Rules Rather Than Discretion: The Inconsistency of Optimal Plans. *Journal of Political Economy*, no. 85, June 1977. p. 473-491.

²² Friedman, Milton. Should There Be an Independent Monetary Authority? In Yeager, L.B., ed. *In Search of a Monetary Constitution*. Cambridge, Mass., Harvard University Press, 1962.

inflation rate has continued to increase over time. There is little doubt the Federal Reserve has an inflationary bias, and while no one doubts the Federal Reserve is ultimately concerned with price stability, the reality is monetary policy frequently falls victim to the time inconsistency problem. Thus, while concern for credibility can offset many of the problems suggested by time inconsistency, the record of Federal Reserve policy does not leave one with a great deal of optimism for the future.

Are there institutional changes that might reduce the inflationary bias of the Federal Reserve? Some observers advocate a rule—such as a constant growth of the monetary base or some monetary aggregate either in an activist or nonactivist framework. Aside from the practical problems, few would want to constrain monetary policy to some inflexible rule given our meager understanding of how the economy functions and how it adjusts to shocks. Is there something short of a rule approach which might generate a more stable value of money in the long run but at the same time, permits human discretion to play a meaningful role?

One approach might be to make the Federal Reserve more formally dependent on government. At first glance, this seems a radical notion that would likely bias upward the inflation rate even further. The opposite might well be the case, however. The Federal Reserve's formal independence and concern with maintaining its independence have actually increased the channels through which monetary policy becomes sensitive to political forces. The Federal Reserve can accommodate the wishes of the administration and/or Congress while the administration and/or Congress can absolve themselves from any responsibility for adverse inflationary effects because the Federal Reserve is "independent" and thus, not subject to administrative and/or congressional guidance. There is a growing recognition among economists ²³ that U.S. monetary policy has frequently been responsive to political institutions.

In contrast, the BOJ is formally dependent on government; however, it has achieved a high level of credibility for maintaining a low and steady inflation rate. Part of the explanation lies in the lack of ability to shift responsibility for adverse effects of inflation by government and the lack of motivation on the part of the BOJ to accommodate government pressures in exchange for maintenance of formal independence. The basic idea is to make monetary policy directly responsible to the elected government and to reduce the range of gamesmanship that occurs in assigning responsibility for the outcome of monetary policy.

Recently proposed legislation to restructure the Federal Reserve along lines that would reduce its formal independence should be given serious consideration. Specifically, various proposals focus on the following: (1) place the Secretary of the Treasury on the Board of Governors and hence, automatically make him/her a member of the Federal Open Market Committee; (2) require the Open Market Committee to immediately announcement policy decisions; (3) permit a new president to select his/her own chair of the Board; (4) subject district bank presidents to Senate confirmation since they

²³ Mayer, Thomas. *The Political Economic of Monetary Policy*. New York, Cambridge University Press, forthcoming.

serve as members of the Federal Open Market Committee; and (5) increase the range of GAO audits.

One of the most radical proposals and one that has found some support even within the Federal Reserve has been brought forth by Representative Stephen L. Neal. He has introduced legislation to require the Federal Reserve to stabilize prices at zero. This is nothing less than a formal rule.

These efforts suggest many observers want to ensure that the Federal Reserve continues to maintain price stability. The instability of the 1970s and the severe decline in economic activity required in the early 1980s to bring inflation under control have convinced at least some influential policy makers that noninflationary monetary policy must continue. The Japanese macroeconomic performance on the less disruption financial liberalization process attests to the importance of this goal.

CONCLUSION

Japan and the United States share a unique historical, cultural, and economic relationship, and they both play an important role in the world economy. Both countries are restructuring their financial institutions and markets toward more competitive structures. While Japan has a considerably greater distance to travel in this regard, the evidence suggests that Japan's liberalization process has been more consistent, gradual, and less disruptive than in the United States.

A great deal of this difference can be traced to the differential performance of each country's central bank. Lower price inflation in Japan has narrowed the gap between regulated and unregulated interest rates compared to the United States, and thus provided less incentive for aggressive and intense innovation of the type that disrupted the U.S. financial system in the 1970s and early 1980s. The Federal Reserve appears to have learned the importance of price stability in the 1980s; however, it remains to be seen in the absence of structural changes how long this focus on price stability will persist.

Finally, the United States needs to have a better and more balanced approach to the external imbalance issues so as to reduce the potential of focusing Japan policy on the wrong issues.

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FOREIGN ACCESS TO JAPAN'S CAPITAL MARKETS

By James K. Jackson ¹

CONTENTS

	Page
Summary	136
The Cost of Capital	137
Nominal Interest Rates.....	139
Real Interest Rates	140
Estimates of the Cost of Capital.....	141
Japanese Financial Assets	143
Domestic Bonds.....	143
Daimyo Bonds	145
Euroyen Bonds.....	145
Obstacles to Foreign Borrowers	147
Structural Obstacles	147
Japanese Corporate Finance.....	150
Domestic Activity.....	150
Overseas Bond Activity.....	150
Conclusions.....	152

SUMMARY

Japan emerged as a major international economic and financial power in the 1980s. This change in Japan's international position partly reflects the growth and success of Japan's manufacturing firms in exporting and investing abroad. Some analysts argue that the international success of Japan's manufacturing firms arises from their ability to tap cheap capital markets at home. Differences in the cost of capital for Japanese firms would mean that the firms could finance expensive capital-intensive projects more easily than could their counterparts abroad. Most studies indicate that the cost of capital, or the cost of debt and equity financing, is lower for Japanese firms than it is for Japan's major economic competitors, especially American firms. Analysts disagree, however, about the extent of the cost of capital advantage for Japanese firms and about the reasons for the differences in borrowing costs.

Despite the apparent cost of capital advantages in Japan, most foreign firms seem uninterested in accessing Japan's capital markets. This lack of interest apparently arises from the underdeveloped nature of Japan's capital markets, which makes operating in those markets difficult for foreign and Japanese firms. As a result, non-Japanese and often Japanese firms find that borrowing from Japanese banks or floating bonds in Japan's capital markets are

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unattractive alternatives compared with the borrowing costs associated with the Euroyenmarket. The volatility of the currency markets, combined with the limited international role of the yen and expectations that the yen would rise in value against the dollar have made borrowing in yen unattractive to most foreign firms.

Japanese firms have also altered their sources of capital to skirt some of the limitations of the domestic Japanese capital markets. These firms have turned away from their traditional focus on borrowing from domestic banks and shifted to equity sources and the international bond markets. Japan's high-flying stock market increased the attractiveness of raising funds through equities and equity-related financial instruments in Japanese equities markets and the international bond markets. The international markets also afforded Japanese firms the ability to operate without the Ministry of Finance overseeing their activities. With the sharp plunge in Japan's stock market in 1990, equity-related instruments will lose most of their attractiveness in the international markets, likely forcing Japanese firms to seek out sources of capital at home.

Some analysts believe that increased capital flows arising from financial market liberalization should eliminate differences in borrowing costs among countries. With greater access to all capital markets, borrowers, regardless of nationality, would seek out any financial advantage, eventually equalizing financial costs among all national capital markets. Recent studies indicate, however, that interest rates across national borders have not converged as predicted. Indeed, some analysts assert that national interest rates have shown no systematic tendency toward convergence during the past 25 years.

THE COST OF CAPITAL

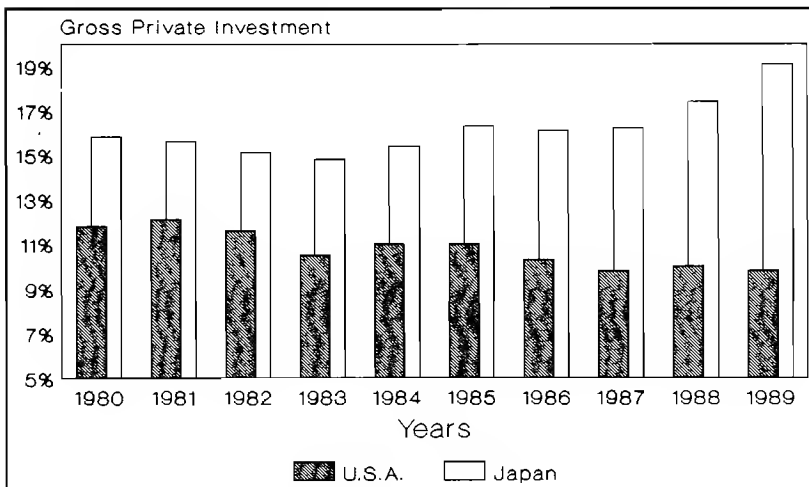
One factor that is often cited as a main cause of the comparatively poor U.S. trade position, especially of U.S. exports of manufactured goods, is the Nation's lagging industrial sector investment. Although many elements can affect the pace and extent of business investment, some observers argue that differences in the cost of capital between the United States and Japan are an important contributing factor.² As figure 1 indicates, gross private nonresidential investment, measured as a share of GNP (Gross National Product) in Japan has generally increased since 1983. In 1988 and 1989, Japan's business investment increased abruptly as Japanese businesses plowed back much of their profits into investments. Such investments were equivalent to 19 percent of Japan's GNP in 1989, compared with an estimate of 9.8 percent for the United States. Also, gross private nonresidential investment, measured as a percent of GNP, has generally declined in the United States since

² Other economists argue, however, that other financial factors are more important than the cost of capital in affecting the firm's investment behavior. This topic, however, is beyond the scope of this paper. For additional information, see: Fazzari, Steven M., R. Glenn Hubbard, and Bruce C. Petersen. Financing Constraints and Corporate Investment. *Brookings Papers on Economic Activity*, v. 1, 1988, p. 141-195; Shapiro, Matthew D. Investment, Output, and the Cost of Capital. *Brookings Papers on Economic Activity*, v. 1, 1986, p. 111-152; and, Feldstein, Martin, and Charles Horioka. Domestic Saving and International Capital Flows. *The Economic Journal*, 1980, p. 314-329.

1984. In dollar terms, private nonresidential capital expenditures in Japan in 1988 and 1989 were greater than comparable investments in the United States, although part of Japan's nominal advantage reflects the strengthened value of the yen against the dollar.

Measuring the costs of investment, or the actual financing costs for a firm, can be a complicated process. This process can be especially difficult when comparing the costs of investments for firms in different countries. These financing costs are sometimes compared by examining the real and nominal interest rates between countries, because the interest rate cost of financing is usually the largest component in the total cost of investing. Investments, however, can be financed in two ways: debt or equity. A simple weighted average of a firm's debt and equity costs is often defined as the firm's cost of funds.³ Of these two financing methods, measuring the cost of debt is the most straightforward, although adjustments for differences in taxes and accounting practices are necessary to compare the real after tax costs of debt financing for firms in different countries. The cost of equity is more difficult to measure because of international differences in inflation, depreciation rules, inventory behavior, ownership patterns, and accounting practices.⁴

FIGURE 1. Gross Private Nonresidential Investment as a Percent of GNP



Source: Bank of Japan. Commerce Dept.

While the cost of funds and the cost of capital are often used interchangeably, there are important differences between the two. The cost of funds, or the combined cost of debt and equity, may not measure the true investment costs to the firm because it does not

³ McCauley, Robert N., and Steven A. Zimmer. Explaining International Differences in the Cost of Capital. *FRBNY Quarterly Review*, summer, 1989. p. 8.

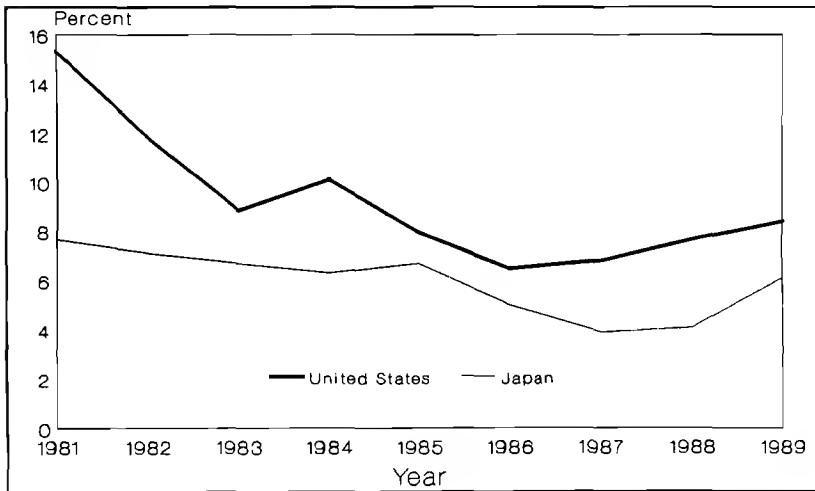
⁴ *Ibid.*, p. 8-9.

account for all the effects of inflation and taxation on corporate profits, and it neglects differences in depreciation schedules and investment tax incentives. In contrast, the cost of capital is the real pre-tax rate of return that covers both the company's after tax cost of funds and its tax obligations.⁵

NOMINAL INTEREST RATES

Measuring the cost of capital, or the actual cost of financing the investment, between the United States and other nations is compounded by a number of factors. One factor, in particular, is the interest rate that is chosen as a basis for comparison of borrowing costs between countries. Most often, simple comparisons are made between the nominal and the real interest rates in Japan and the United States as a way of emphasizing the "financial plight" of American companies. As figure 2 indicates, differences in nominal long-term, corporate interest rates⁶ in the United States and Japan have ranged from 7.5 percentage points in 1981 to a low of 1.25 percentage points in 1985. Over the 1981-1988 period, the difference has averaged 3.5 percentage points.

FIGURE 2. Nominal Interest Rates: The United States and Japan 1981-1988



Source: International Monetary Fund.

Some analysts argue that virtually any disturbance that affects one country's financial markets more than another's may lead to differentials in international interest rates.⁷ They also contend

⁵ *Ibid.*, p. 15.

⁶ Measures of interest rates for this analysis were obtained from *International Financial Statistics* published by the International Monetary Fund. For Japan, the rate used is that for the private bill rate; for the United States, the rate is the commercial paper rate.

⁷ Kasman, Bruce, and Charles Pigott. *Interest Rate Divergences Among the Major Industrial Nations*. *FRBNY Quarterly Review*, autumn, 1988. p. 28-44.

that the most important source of divergence in national interest rates have been differences in national inflation rates. As a result, the real interest rate is measured as the nominal interest rate minus some measure of investors' expectations of the rate of inflation. The national rate of inflation often is used as a proxy for the inflation expectation component. These two measures of interest rates can be quite dissimilar, depending on the rate of inflation. During the 1980s, for instance, nominal and real interest rates in the United States remained higher than in many other developed countries, especially Japan.

Changes in interest rates can also reflect changes in government economic policy, especially monetary policy. Some economists believe, for instance, that the rise in interest rates in the United States in the 1980s may have resulted from a tightening in monetary policy to fight inflation and from the increased importance of interest rates as a way of clearing financial markets following the deregulation of interest rate ceilings in the United States in advance of such deregulation in Japan. Indeed, a large share of interest rates on deposits are still controlled in Japan, despite progressive deregulation of Japan's financial markets during the 1980s.⁸

Interest rates, however, are determined by a broad confluence of factors, including the overall level of economic activity. While relatively high or low levels of interest rates can retard or encourage, respectively, economic growth, the level of economic activity can also affect interest rates. This relationship is particularly important in explaining the comparatively lower interest rates in Japan in the 1970s and 1980s, according to some economists.⁹ The oil price shocks of the 1970s sharply reduced Japan's underlying growth rate at a time when Japanese households were saving substantial amounts. Japan regained only part of the decline in its growth rate during the economic upturn in the second half of the 1970s, compared with most industrial economies, which rebounded to their previous rates of growth.

REAL INTEREST RATES

Adjusting for the rate of inflation alone can make a considerable difference in the comparison of interest rates between countries. As figure 3 indicates, the difference between real interest rates in the United States and Japan has decreased since 1984 when the U.S. rate was nearly 2 percentage points higher than the comparable Japanese rate. Moreover, for a time in 1985, 1987, and 1989, the real U.S. rate dipped below the rate in Japan, spurring investors to favor dollar-denominated assets over yen denominated assets. The difference between the two rates increased during 1988 as U.S. nominal interest rates rose because the Federal Reserve tightened the money supply to rein in inflation.¹⁰ Real interest rates in Japan, however, have remained at historically low levels, and inflation, measured by the consumer price index, rose by only seven-

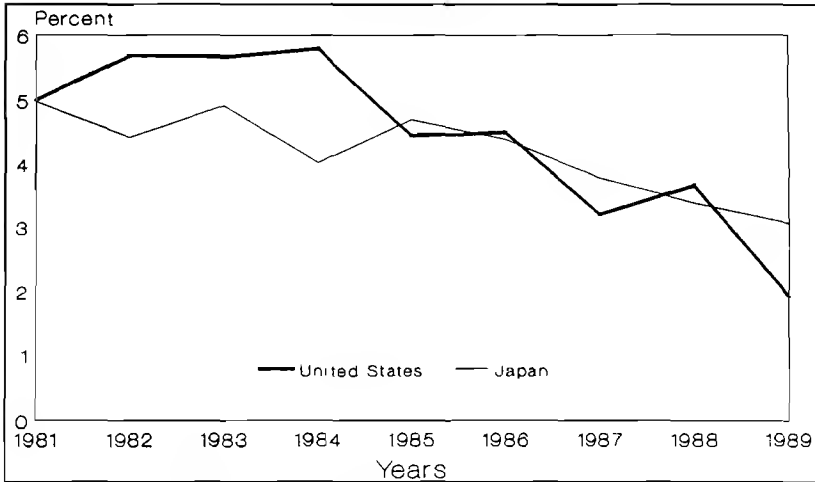
⁸ Corcoran, Patrick J., and Leonard G. Sahling. The Cost of Capital: How High Is It? *FRBNY Quarterly Review*, summer, 1982, p. 23-31.

⁹ Kasman, Bruce. Japan's Growth Performance Over the Last Decade. *FRBNY Quarterly Review*, summer, 1987, p. 45-55.

¹⁰ Probyn, Christopher, and David Wyss. Explaining the Stubborn Strength of the Dollar. *U.S. Review*, June 1989. DRI/McGraw-Hill, p. 23-24.

tenths of one percentage point in 1988. In 1989, however, inflation jumped by 2.4 percentage points, which prompted the Bank of Japan to increase its interest rate. Another explanation that is often offered for the differences in interest rates is that investors have expected the dollar to depreciate against the yen and, therefore, they have asked for higher returns.¹¹

FIGURE 3. Real Interest Rates: The United States and Japan
1981-1988



Source: International Monetary Fund.

ESTIMATES OF THE COST OF CAPITAL

A number of different studies have estimated the cost of capital in the United States and Japan.¹² These studies conclude that the cost of capital in Japan is generally lower than in the United States, but they disagree over the extent of and the reasons for the differences in borrowing costs. In one study, the author estimates that the cost of capital in the United States in 1981 was nearly four times that prevailing in Japan—19 percent in the United States versus 5 percent in Japan. This difference was attributed to taxes, tax credits and depreciation allowances, and the greater use of borrowed funds in Japan because rates for large corporate borrowers were below the market rates. This author concluded that the cost of capital difference “gives Japan a decisive advantage not

¹¹ Frankel, Jeffrey A. *Japanese Finance: A Survey*. Cambridge, Mass., National Bureau of Economic Research, 1989. Working Paper No. 3156. p. 32-33.

¹² Hatsopoulos, George N. *High Cost of Capital: Handicap of American Industry*. Waltham, Mass., Thermo Electron Corporation, 1983; Ando, Albert and Alan J. Auerbach. *The Cost of Capital in the U.S. and Japan: A Comparison*. Cambridge, Mass., National Bureau of Economic Research, 1987. Working Paper No. 2286; McCauley and Zimmer, Explaining International Differences in the Cost of Capital, and Frankel, *Japanese Finance: A Survey*.

only in the existing basic industries, but also in the development of new high technology industries."¹³

Another group of analysts¹⁴ concludes that the cost of capital is lower for Japanese firms than for American firms, but that the difference is not nearly as large as was determined in the previously cited study—13.1 percent in the United States versus 8.5 percent in Japan. The authors consider, but reject a number of explanations for Japan's cost of capital advantage, including differences in corporate tax rates, the use of borrowed funds, and the share of assets that are liquid in Japanese companies. Instead, these authors contend that the large pool of Japanese savings that was *not* permitted until the mid-1980s to flow to foreign capital markets, forced funds generated in Japan to be invested at lower rates than those prevailing in the United States and elsewhere.¹⁵

A recent study of the cost of capital between the United States, Japan, West Germany, and the United Kingdom maintains that higher household savings in Japan and West Germany and successful macroeconomic policies are responsible for a lower cost of capital in those two countries. The authors estimate that the difference in American and Japanese long-term interest rates was the greatest in 1981—at 13.5 percent in the United States and 8.8 percent in Japan (see table 1). According to their estimates, the cost of capital for U.S. and Japanese firms in 1988 was 11.2 and 7.2 percent, respectively.¹⁶ These economists also argue that relatively more stable national economic growth rates and prices, combined with a close relationship between banks and industry enable Japanese and West German firms to lower their capital costs through the greater use of debt at a lower risk. They also conclude that Japan's unique system of business relations in enterprise groups, or *keiretsu*, where the majority of corporate shares are held by members of the group and are rarely traded, reduces the financial risks for these firms.¹⁷

Table 1. ESTIMATE OF THE COST OF CAPITAL FOR EQUIPMENT AND MACHINERY

	(Interest rate)											
	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988
United States	11.2	11.7	11.2	11.5	13.5	11.5	10.6	11.3	11.1	9.1	10.2	11.2
Japan	5.9	6.9	7.6	8.8	8.8	8.5	8.8	8.4	8.3	7.8	7.0	7.2
West Germany.....	7.7	7.3	7.5	8.6	8.8	7.8	7.0	7.2	7.1	6.9	7.0	7.0
United Kingdom.....	8.8	10.8	9.8	12.7	10.3	10.7	10.8	9.3	9.4	7.8	8.2	9.2

Source: McCauley, Robert N., and Steven A. Zimmer. Explaining International Differences in the Cost of Capital. *FRBNY Quarterly Review*, summer, 1989, p. 16.

¹³ Hatsopoulos, *High Cost of Capital: Handicap of American Industry*, p. 37.

¹⁴ Ando and Auerbach, *The Cost of Capital in the U.S. and Japan: A Comparison*, Table 3.

¹⁵ For additional information on Japan's capital surplus, see: U.S. Library of Congress. Congressional Research Service. *Japan's Capital Surplus: Its Origins and Uses*. Report No. 90-165 E, by James K. Jackson. Washington, 1990. 20 p.

¹⁶ McCauley and Zimmer, Explaining International Differences in the Cost of Capital, p. 16.

¹⁷ *Ibid.*, p. 21.

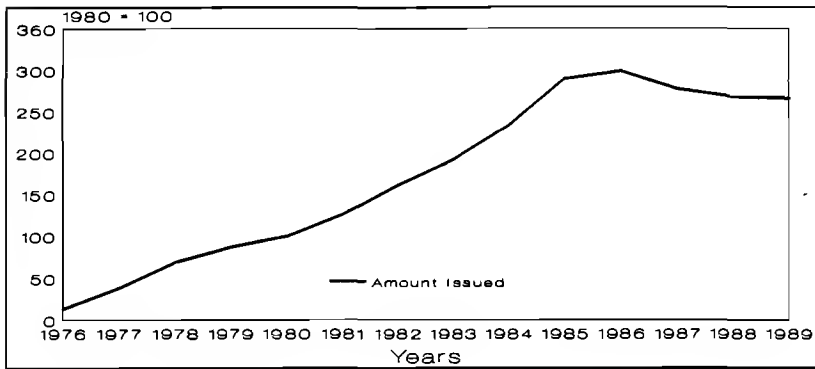
JAPANESE FINANCIAL ASSETS

Sustained differences in nominal interest rates between Japan and the United States have spurred some analysts to question why more foreign firms have not borrowed money in Japan. There are a number of ways a foreign firm can borrow funds in Japan, and some foreign firms have done so. The most common approach is to issue external bonds, which can be issued in Japan by nonresidents or issued outside Japan. Of those floated in Japan, both foreign currency-denominated and yen-denominated issues exist, although the larger share has been in yen-denominated bonds.¹⁸

DOMESTIC BONDS

As figure 4 indicates, most of the growth in the yen-denominated foreign bond market occurred after 1976; the outstanding amount of such bonds reached a peak of Y5.3 trillion, or \$32 billion (converted at the 1986 yen/dollar exchange rate of 168.5) in 1986. Since 1986, the amount of such bonds issued has declined by 11 percent to Y4.7 trillion in 1989. The steep appreciation in the value of the yen and the subsequent Plaza Accord agreement in 1985 likely did much to reduce foreign interest in yen-denominated bonds.¹⁹ Prior to this rise in the value of the yen, Japanese bankers had solicited foreign governments, agencies, and corporations to finance their activities in yen. With the rise in the yen, however, those who borrowed in yen have seen the dollar value of their debt burden double in the past five years.²⁰

FIGURE 4. Yen-Denominated Foreign Bonds Issued



Sources: Bank of Japan.

¹⁸ Suzuki, Yoshio. *The Japanese Financial System*. Oxford, Clarendon Press, 1987. p.100.

¹⁹ For additional information, see: U.S. Library of Congress. Congressional Research Service. *Japan's Financial Liberalization: Effects on the United States*. Report no. 89-102 E, by James K. Jackson. Washington, 1989. 40 p.

²⁰ Murphy, R. Taggart. *The Recycling of Japan's Capital Surplus: A Practitioner's Perspective*. Unpublished paper presented at a workshop sponsored by the Congressional Research Service and the Citizens Network for Foreign Affairs on Japan's Capital Surplus and Its Implications for Growth in the Developing Countries.

The most common of the domestically issued yen-denominated bonds are *Samurai* bonds, which are placed through public subscription and listed on the Tokyo Stock Exchange. In 1970, the Ministry of Finance authorized the purchase of yen-denominated public bonds by nonresidents of Japan.²¹ At the end of that year, the Asian Development Bank sold a Y6 billion bond. The *samurai* bond market peaked in 1985, reflecting the value of the yen at that time. From 1985 to 1988, the yen strengthened against the dollar, making most investors leery of incurring debt obligations in an appreciating currency.

Prior to 1989, there were a number of guidelines associated with yen bonds that likely reduced their attractiveness to foreign borrowers. Foreign issuers with double A and higher ratings were allowed to float yen bonds without meeting minimum levels of equity-to-asset ratios and net assets.²² Those issuers with a single A rating and net assets of more than \$1.5 billion were also exempted from fulfilling the requirements. In recent regulatory changes, the Ministry of Finance reduced the minimum maturity of bonds with warrants from six years to four years and permitted issuers to separate bonds and their related warrants in the primary market. The Ministry also ruled that any issue rated by a U.S. or Japanese agency may be sold on the Euroyen bond market.²³ Other borrowers are able to float bonds if they can fulfill certain minimum financial requirements, including a shareholders' equity ratio of 30 percent. As table 2 indicates, corporations with financial assets of Y300-600 billion and Y150-300 billion have additional requirements that must be met.

Table 2. QUALIFICATION STANDARDS FOR SAMURAI AND SHIBOSAI BONDS

Financial Criteria	Corporate Borrowing	Requirements
Net Asset Size (Y billions).....	300-600.....	150-300
Net Assets/Total Assets (%).....	40 or more.....	45 or more
Long-term debt/capitalization.....	35%.....	40%
Profit before interest/total assets.....	8%.....	8.5%
Interest coverage ratio.....	3.0.....	3.5
Long-term debt/cash flow ratio.....	2/4.....	3

Source: Viner, Aron. *Inside Japanese Financial Markets*. Homewood, Ill., Dow Jones-Irwin, 1988. p. 156.

Interest rates for *Samurai* and *Shibosai* bonds are based on the prevailing long-term prime rate adjusted to the credit worthiness of the issuer. A recent *Samurai* bond issued by the World Bank carried an interest rate of 6.4 percent, compared with 10-year Japanese government bonds of 4.6 percent.²⁴ Maturities of five, seven, or 10 years are common for *Samurai* and *Shibosai* bonds.

Shibosai bonds are similar to *samurai* bonds because they are domestically issued yen-denominated bonds, but they are privately placed and are not listed as are *samurai* bonds. Foreign firms can

²¹ Viner, Aron. *Inside Japanese Financial Markets*. Homewood, Ill., Dow Jones-Irwin, 1988. p. 154.

²² Ibid, p. 155-156.

²³ *Financial Market Trends*, October. Organization for Economic Cooperation and Development, 1989. p. 54.

²⁴ Schoenholtz, Kermit L., and Tomoko Fujii. *Japanese Yen Bond Markets: Monthly Review*, February 16, 1989. New York, Salomon Brothers Inc., 1989. p. 5.

also borrow funds in Japan through *Shogun* bonds, or foreign-currency-denominated bonds. The majority of these bonds have been denominated in dollars. For bonds issued outside Japan, there are foreign currency-denominated and yen-denominated bonds. The foreign currency-denominated bonds have been issued since 1955 in the United States, West Germany, Switzerland, and the Euromarkets. The yen-denominated bonds are called Euroyen bonds, which have been open to private corporate placement since 1984.²⁵

Some Japanese financial analysts had expected the *Samurai* bond market to pick up in 1989²⁶ because the Finance Ministry had introduced a number of measures to make the issues more attractive. The ministry approved a shelf registration program in 1988 that provides borrowers with advanced approval for future bond issues so that they can circumvent the time-consuming registration that had been required for each new issue. Both the State of Kentucky and the Student Loan Marketing Association issued *Samurai* bonds. It appears, however, that the recent weakness of the yen against the dollar and the perception by market analysts of higher interest rates in Japan to shore up the yen discouraged most foreign investors.

DAIMYO BONDS

Initiated in 1987, the *Daimyo* bond is a yen-denominated bond that is issued in Luxembourg, but is sold in Japan and in the Euro-market. *Daimyo* Bonds were introduced to revive the *Samurai* bond market by offering an instrument with more liquidity than the *Samurai* bonds. The *Daimyo* bond is listed on the Luxembourg Stock Exchange.²⁷ As table 3 indicates, *Daimyo* bonds carry lower commission fees, recording fees, and paying agent fees, which makes the yield on *Daimyo* bonds equivalent to those on Euroyen bonds.²⁸ The estimates in table 3 are for a ¥40 billion bond with a yield of 4.5 percent.

Table 3. COMPARISON OF ISSUING COSTS (¥40 BILLION BOND WITH 4.5% YIELD)

(¥ millions)		
	Daimyo	Samurai
Underwriting fees.....	¥600	¥600
Commission fees.....	24	36
Recording fees.....	nil	16
Paying agent fees		
principal.....	5.6	80
coupon.....	8	54

Source: *Corporate Finance*, October 1987, p. 60.

EUROYEN BONDS

The Euroyen market is a major source of foreign borrowings in yen, although the market contracted sharply in 1988, as indicated

²⁵ Viner, *Inside Japanese Financial Markets*, p. 154-158.

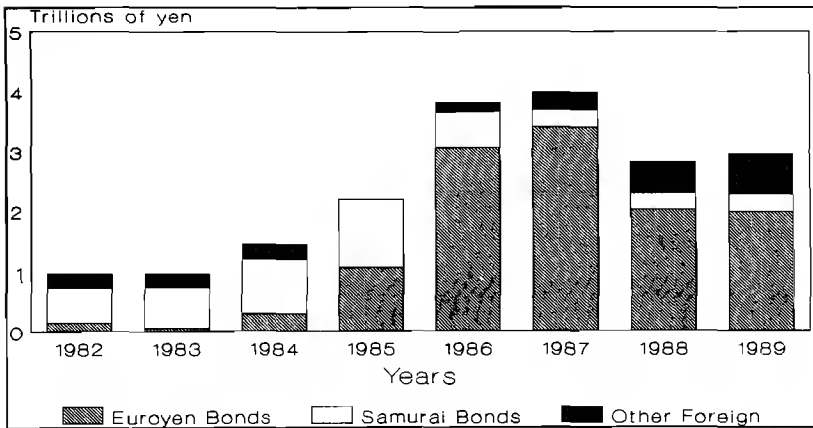
²⁶ Makino, Yo. *Samurai Bond Activity Rekindled*. *The Japan Economic Journal*, March 11, 1989, p. 1.

²⁷ Viner, *Inside Japanese Financial Markets*, p. 328-329.

²⁸ Daimyo's Bid to be Overlord. *Corporate Finance*, October 1987, p. 49.

in figure 5. Euroyen borrowings in 1987 reached a peak of Y3.4 trillion, or \$23 billion. Some analysts believe that the Euroyen market grew rapidly because of market deregulation in Japan and because Euroyen transactions are free from domestic controls and transaction rules such as legal reserve requirements for deposits, interest rate regulation, and collateral requirements. Euroyen bonds are issued in Europe, rather than in Japan, as indicated in table 4, giving them some distinct advantages over *samurai* and *daimyo* bonds. As a result of these advantages, some argue that the Euroyen market is not simply a place for Japanese investors to seek higher interest rate returns, but it is a substitute for certain domestic financial transactions.²⁹ For 1989, however, new Euroyen issues fell to about \$16 billion. Eurodollar issues, by contrast, totaled \$56.7 billion in 1987 and about \$80 billion in 1988. It appears that the Euroyen market suffers from investors' perceptions that the market remains very illiquid and that there are few opportunities for investors to engage in Euroyen swap arrangements.³⁰ As a result, the Euroyen market apparently has become less attractive to investors than offerings denominated in currencies other than in yen.

FIGURE 5. External Bond Issues in Yen



Source: OECD

Some analysts have also suggested that foreign firms list themselves on the Tokyo Stock Exchange. By being listed, the foreign firms might be able to take advantage of the higher Japanese

²⁹ Suzuki, *The Japanese Financial System*, p. 124-125.

³⁰ In a typical swap arrangement, a borrower of a Euroyen bond exchanges the yen debt with a Japanese bank, which then provides the borrower the yen he needs to make the loan payments. The bank, in turn, borrows Eurodollars at the London Interbank Offered Rate (LIBOR) and forwards the newly obtained dollar debt to the borrower who is obligated to make the dollar interest payments at an agreed upon discount rate. Through this combination of a currency swap and an interest rate swap, the borrower has swapped fixed yen debt for floating rate dollar debt at a rate that is cheaper than he could otherwise have obtained. See Viner, *Inside Japanese Financial Markets*, p. 177-178; and Grabbe, J. Orlin. *International Financial Markets*. New York, Elsevier Science Publishing Co., 1986.

Table 4. FEATURES OF YEN-DENOMINATED FOREIGN BONDS

	Samurai Bond	Daimyo Bond	Euroyen Bond
Issue place	Japan	Japan	Europe
Placement place	Japan	Japan	Europe
Governing law	Japan	Japan	Luxembourg
Tax status	Domestic bond	Domestic bond	Foreign bond
Listing	Tokyo	Luxembourg	Luxembourg

Source: *Corporate Finance*, October 1987, p. 60.

price-earnings ratios (the current market price of a share of stock divided by the issuing company's earnings per share for a 12-month period) to raise funds. This route has held little attraction so far for foreign firms because of the burden of providing the considerable amount of documentation that is required, the requirement of a second financial audit by a Japanese accounting firm, and the exorbitant costs involved in being listed.³¹

OBSTACLES TO FOREIGN BORROWERS

As the preceding analysis indicates, there are a number of ways foreigners can take advantage of Japan's capital surplus. Obstacles in the international and Japanese capital markets and problems associated with the way Japanese yen-denominated borrowings are structured, however, reduce the attractiveness of borrowing in Japan to most foreign firms. Among the more important factors dissuading foreigners from borrowing in Japan are the current trends in real (as differentiated from nominal) interest rates, the relative unavailability of yen in international financial markets, and the state of liberalization of financial markets in Japan. National interest rates among different countries have not converged as expected, despite financial market liberalization. Some argue that market liberalization has eliminated many of the institutional barriers that cause disparities in national interest rates, but that other, equally important, sources of divergence remain. In particular, various governmental policies, institutional imperfections, and the risks associated with exchange rate changes are potentially important sources of international interest rate disparities.³² These differences may mean that estimates of the cost of capital will continue to show an advantage for Japanese firms.

STRUCTURAL OBSTACLES

An important factor for foreigners who are considering borrowing in yen is access to yen itself. During the 1980s, the international use of the yen increased, prompting some belief that the yen was being positioned as another key international currency.³³ Nevertheless, foreign borrowers, who are looking to borrow in yen, are

³¹ Viner, *Inside Japanese Financial Markets*, p. 67.

³² Kasman, Bruce, and Charles Pigott. Interest Rate Divergences Among the Major Industrial Nations. *FRBNY Quarterly Review*, autumn, 1988, p. 28-29.

³³ Kido, Sumio. International Use of Yen Seen Increasing Steadily. *The Japan Economic Journal*, May 14, 1988, p. 1; and Makino, Yo. Yen Ready to Ease Dollar Burden as Key International Currency. *The Japan Economic Journal*, October 15, 1988, p. 1.

hampered considerably by the minimal role the yen plays as an international reserve or settlements currency.

When a firm borrows yen-denominated assets, it assumes a currency risk because it will have to repay the loan in yen. During periods when there are fluctuations in exchange rates, this risk can significantly raise the firm's borrowing costs. Some of this risk can be reduced by engaging in currency swap arrangements, or through hedging operations, which allow borrowers to buy yen at some future date at a specified price. All of these operations are costly to the firm, however, and reduce, or eliminate, most of the incentives to borrow in yen. These costs might be reduced if foreign borrowers had more opportunities to earn yen through trade or if yen were more freely available as a reserve currency.³⁴

A number of indicators are used to measure the use of the yen in international markets. One is the extent to which Japan's trade is conducted in yen. Trade conducted in yen is important because foreign firms are more willing to borrow in yen if they know that they will be able to earn the yen they need to repay their loans. As table 5 indicates, the share of Japan's exports priced in yen increased sharply between 1975 and 1983, but then declined to about one-third by 1987. For imports, the share of yen-priced goods increased nearly five-fold during the 1980s to about 12 percent. Despite these gains, Japan still trails behind other comparable countries: West Germany, for instance, prices 80 percent of its exports in Deutsche marks.³⁵ Some analysts argue that Japanese firms price their exports in foreign currencies, primarily dollars, to avoid unpredictable losses in sales volume, which they might suffer in the event of sudden or rapid yen appreciation.

Table 5. SHARE OF YEN INVOICING IN JAPAN'S TRADE

	(Percent)						
	1975	1980	1983	1984	1985	1986	1987
Exports.....	17.0	28.9	42.0	39.5	39.3	36.5	33.4
Imports.....	0.9	2.4	n.a.	n.a.	7.3	9.7	11.6

Source: Osugi, K. *Japan's Experience of Financial Deregulation Since 1984 in an International Perspective*. BIS Economic Papers, No. 26, 1990. p. 46.

Another measure of the international use of the yen is the role of the yen as a reserve currency. This role is measured by comparing the yen's share of official holdings of foreign exchange reserves held by banks. As table 6 indicates, the share of foreign exchange reserves comprised of yen that was held among banks increased steadily from 1980 to 1985, but has declined slightly since. The increase in the yen's share of foreign exchange reserves during the 1980s likely reflects Japan's booming exports and the higher value of the yen against the dollar. The exchange value of the yen rose almost unimpeded from 1985, following the Plaza Accord of the major industrial countries, through 1988. Considering Japan's role in the world economy, some believe that the yen still lags too far

³⁴ Murphy, *The Recycling of Japan's Capital Surplus: A Practitioner's Perspective*.

³⁵ Osugi, K. *Japan's Experience of Financial Deregulation Since 1984 in an International Perspective*. BIS Economic Papers, Paper No. 26, January 1990. p. 46.

behind the dollar and the mark in its acceptance as an international currency. The lagging role of the yen has even led some observers to conclude that the only way to promote further the international use of the yen is to improve its attractiveness as an investment currency for private and official holders.³⁶ Despite the relatively small share of yen in foreign exchange reserves, use of the yen increased by a greater amount during the 1980s than did any other currency. Indeed, during the same period, the dollar's share of foreign exchange reserves declined as the respective shares of the pound, the mark, and the yen all increased.

Table 6. CURRENCY COMPOSITION OF FOREIGN EXCHANGE RESERVES

(End of year, percent)

	1980	1981	1982	1983	1984	1985	1986	1987	1988
U.S. dollar	68.6	71.5	70.5	71.2	69.4	64.2	66.0	66.8	63.3
Pound sterling	2.9	2.1	2.4	2.6	3.0	3.1	2.8	2.7	3.1
Deutsche Mark	14.9	12.8	12.3	11.6	12.3	14.9	14.9	14.7	16.2
French franc	1.7	1.3	1.2	1.0	1.0	1.3	1.2	1.2	1.7
Swiss franc	3.2	2.7	2.8	2.4	2.1	2.3	1.9	1.6	1.5
Netherlands guilder	1.3	1.1	1.1	0.8	0.8	1.0	1.1	1.2	1.1
Japanese yen	4.3	4.0	4.7	4.9	5.6	7.8	7.6	7.1	7.2
Other	3.1	4.4	5.0	5.5	5.8	5.4	4.4	4.7	6.0

Source: *Annual Report*, 1989. Washington, International Monetary Fund, p. 55.

The volume of bond transactions on the Euromarkets is another measure of the international use of the yen. As indicated in table 7, the yen's share of bonds offered on the Eurobond market on a flow basis increased from 4.9 percent in 1980 to 13.7 percent in 1987, or to represent the second largest share after the dollar. In 1988 and 1989, the yen's share contracted sharply, falling to an estimated 6.3 percent of bond offerings in 1989—fourth place among major currencies. Some analysts estimate that low yields on yen-denominated bonds and limited swap opportunities account for the reduced role of yen bonds.³⁷

Table 7. CURRENCY DISTRIBUTION OF EXTERNAL BOND OFFERINGS

(Percent)

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
US Dollar	42.2	60.4	65.6	58.0	57.3	54.0	53.9	38.8	41.2	54.7
Swiss Franc	19.7	17.0	14.4	17.1	14.6	11.3	10.7	12.9	11.1	7.4
DMark	22.1	5.4	6.5	8.1	7.8	8.5	8.0	8.0	10.1	5.9
Pound	3.0	3.0	2.2	3.8	4.9	4.0	4.6	7.8	9.4	7.2
Yen	4.9	6.6	5.6	5.5	7.1	9.1	10.4	13.7	8.4	6.3
CDollar	0.7	1.4	1.6	1.4	1.7	1.6	2.3	3.4	5.7	4.1
ECU	0.7	0.4	0.9	2.7	3.3	5.2	3.4	4.0	4.9	5.1
French Franc	3.0	1.3				1.1	1.7	1.3	1.3	2.2
Dutch Gilder	2.3	1.9	1.7	2.0	2.1	1.3	1.3	1.1	1.2	1.0

Source: *Financial Market Trends*, various issues. Organization for Economic Cooperation and Development³⁶ *Ibid.*, p. 52.³⁷ *Ibid.*, p. 50.

JAPANESE CORPORATE FINANCE

Institutional and market impediments not only dissuade foreign borrowers from seeking funds in Japan's capital markets, but Japanese firms have also sharply altered their sources and methods of raising capital to avoid the remaining official and unofficial controls over the markets. Over the last decade, Japanese firms turned away from domestic banks—their traditional sources of capital—and, at times, the domestic capital markets, as their main sources of capital, shifting to equity sources and the international bond markets. This shift arises largely from the constraints that still exist in Japan's financial markets, the additional financial options open to Japanese firms because of their growing international presence, and the increased sophistication of those firms in operating in the international markets.

DOMESTIC ACTIVITY

Throughout the 1960s and 1970s, Japanese companies were growing so quickly that they could not generate the internal funds necessary to finance their investment needs. As a result, they relied heavily on debt financing from Japanese banks for their investment funds. The banks willingly loaned the corporations the cash they needed because the banks, in turn, required the corporations to keep part of their loans on deposit. In the 1980s, Japan's cash-rich corporations were offered attractive investment opportunities outside their traditional banking arrangements, spurring them to venture into the domestic equity markets and the international capital markets. The international markets offered better terms, at times, for the companies and allowed them to operate free from the customary regulatory constraints they face in Japan.

As table 8 indicates, from 1980 to 1985, Japanese firms reduced their dependence on domestic stock and bond markets for their capital from around 80 percent of their needs to 49 percent. Since 1985, however, Japanese firms turned to the domestic Japanese bond equity markets for significant shares of their capital. By 1988, domestic sources accounted for 85 percent of the capital raised by Japanese firms.

Table 8. FINANCING BY JAPANESE CORPORATIONS

(Trillions of yen)

	Stocks Bonds	Straight		Convertible		Warrant	
		Domestic	Foreign	Domestic	Foreign	Domestic	Foreign
1980.....	1.052	1.033	0.184	0.104	0.510	0.000	0.000
1981.....	1.926	1.219	0.067	0.364	0.804	0.020	0.000
1982.....	1.349	1.113	0.375	0.448	0.657	0.044	0.098
1983.....	0.802	0.695	0.638	0.827	1.082	0.010	0.129
1984.....	1.043	0.765	0.618	1.209	1.311	0.013	0.451
1985.....	0.859	0.590	1.517	1.920	1.301	0.010	0.693
1986.....	0.873	0.615	1.589	2.743	0.434	0.115	2.045
1987.....	3.013	0.820	1.129	5.254	1.005	0.033	3.203
1988.....	4.782	0.873	0.623	6.594	0.925	0.000	3.703

Note: A convertible bond is a bond that is convertible to a fixed number of equity shares in the same corporation in accordance with the terms of the issue; a warrant bond is a corporate debt security that gives its holder the right to buy common stock in the same corporation at a future date at a specified price.

Source: *Annual Securities Statistics*, 1988. Tokyo Stock Exchange p. 123.

A major factor that influenced Japanese firms to shift their sources of financing toward domestic capital sources was the strength of Japan's stock market during the 1980s. The rising stock market made it attractive for Japanese firms to raise capital through equity offerings and through convertible and warrant bonds that allow the holder to convert the bonds into equity shares. In 1989, Japanese businesses reportedly raised Y24.8 trillion through all sources of equity financing compared with Y17.5 trillion in 1988.³⁸ Sony Corporation of Japan is financing a large share of its 1988 purchase of CBS Records Inc. and its 1989 acquisition of Columbia Pictures by issuing warrant and convertible bonds. Because such equity-based bonds are tied to Japan's stock market, Japanese firms could obtain financing at terms that would have been impossible in any other way: one such bond offering in January 1990 had a coupon value of 0.1 percent, compared with a long-term prime interest rate in Japan of 6.8 percent.

Another factor that has been cited as a source of cheap funds for Japanese firms is the close association that developed between Japanese companies and banks in industrial groups, or *keiretsu*. Because of this close association, Japanese firms obtained loans at preferential interest rates and with minimal risk, thereby encouraging debt financing.³⁹ Some analysts contend that this corporate structure has had only a minor effect on the interest rates Japanese firms face, because the banks have required the companies to keep a significant share of their loans on deposit with them, indirectly increasing the cost of the funds to the companies.⁴⁰ Financial market deregulation in Japan indirectly forced the banks to reduce the amount of compensating balances they had demanded: estimates indicate that compensating balances shrank from 17.6 percent of loan amounts in 1965 to about 2.2 percent by 1985.⁴¹

OVERSEAS BOND ACTIVITY

Japanese corporations have also become active participants in the international bond markets, primarily in the Eurodollar market. A large part of this activity represents the recycling of capital among Japanese firms, which have become the most active borrowers in the international credit markets. According to the Bank for International Settlements, Japanese borrowers accounted for nearly 85 percent of the total amount of the announced equity-related new issues in the international bond markets.⁴² As table 9 indicates, Japanese firms have turned to warrant bonds as the preferred instrument for raising funds in the international markets: by 1988, warrant bonds accounted for 70 percent of Japanese corporate overseas bond issues. In just a few years, the equity warrant market has become one of the world's largest international markets for corporate fund raisers; although it remains almost exclusively run by the Japanese.⁴³ Japan's activity in the equity-related

³⁸ Equity Financing: A Corporate Money Machine. *The Japan Economic Journal*, February 17, 1990, p. 23.

³⁹ Frankel, *Japanese Finance: A Survey*, p. 8-9.

⁴⁰ Suzuki, Yoshio. *Money, Finance, and Macroeconomic Performance in Japan*. New Haven, Yale University Press, 1986, p. 7-8.

⁴¹ Viner, *Inside Japanese Financial Markets*, p. 126.

⁴² Bank for International Settlements. *58th Annual Report*. Zurich, BIS, 1988, p. 126.

⁴³ Crabbe, Matthew. The Year of the Warrant is Here. *Euromoney*, February 1989, p. 25.

bond markets sustained those markets as the most dynamic of the entire international capital markets. In 1989, for instance, Japanese corporations reportedly doubled their issues, representing 97 percent of the total market.⁴⁴

Table 9. OVERSEAS BOND ACTIVITY OF JAPANESE COMPANIES

(Billions of yen)					
	Total	Straight	Warrant	Convertible	Other
1980.....	806.7	184.1	0.0	514.9	107.7
1981.....	1,058.4	67.1	0.0	783.8	207.5
1982.....	1,270.6	375.5	98.0	665.7	131.4
1983.....	1,897.5	637.6	128.6	1,056.0	75.3
1984.....	2,386.6	601.4	451.1	1,310.9	23.1
1985.....	3,489.3	1,491.1	692.9	1,301.8	3.5
1986.....	4,048.2	1,569.2	2,045.3	433.7	0.0
1987.....	5,365.5	1,129.1	3,202.9	1,003.3	30.3
1988.....	5,259.9	623.3	3,702.8	925.3	8.5

Source: *Annual Securities Statistics*. Tokyo Stock Exchange, 1988

Another constraint on foreign borrowing is the perceived lack of liquidity in Japan's financial markets. Despite the size of Japan's markets, the interlocking corporate groups, or *keiretsu*, which effectively keep two-thirds of all Japanese corporate issues from being traded, and the dominance of the four main securities houses reduce the overall liquidity in the markets. Since corporate issues are predominantly handled by only one of the four main brokerages, there is the perception that the brokerage house has exclusive information about the stock, thereby reducing the attractiveness, and the liquidity, of the stock to other investors. Critics also contend that the dominance of the large securities houses gives those houses the ability to manipulate stocks and, at times, the direction of the market.

CONCLUSIONS

Estimating the differences in the cost of capital for American and Japanese firms has proven to be a creative, yet inexact science. Although Japanese firms apparently have a cost-of-capital advantage over American firms, there is little agreement over the source of that advantage. Interest rates diverge among national economies for a number of reasons that not even perfect capital markets would resolve. While taxes and accounting practices may play a role causing interest rates to diverge between countries, the most important factor appears to be differences in national savings rates. The stability of national economic growth rates and low rates of inflation also are major factors in determining the cost of capital and the overall direction for business investment and performance. Japanese firms recently have faced unusually low borrowing costs because they successfully parlayed Japan's high-flying stock market into equity-related assets that carry especially attractive financial costs for Japanese firms.

⁴⁴ *Financial Market Trends*, October 1989. Organization for Economic Cooperation and Development. p. 45.

Foreign firms, however, do face numerable obstacles in their attempts to access Japan's domestic capital markets. In addition to institutional imperfections, the risks associated with exchange rate changes apparently hinder national interest rates from converging. Some analysts even argue that "the existence of different national currencies is a fundamental source of international interest rate divergences."⁴⁵ They contend that the move to flexible exchange rates in the 1970s has made exchange rates more variable. This variability adds to the risks associated with financing investments in a foreign currency, because part of the yield differentials among assets denominated in different currencies implicitly reflect market forecasts of future exchange rate movement. The difficulties involved in earning yen, added to the exchange rate risks that are attendant upon borrowing in yen, substantially reduce the attractiveness of yen assets to foreign firms, despite lower nominal interest rates in Japan.

Nevertheless, foreign firms have benefitted somewhat from Japan's capital surplus. Japanese investors have been active in the U.S. capital markets, especially in the Treasury securities market. This capital inflow eased pressure in the U.S. credit markets, thereby holding down interest rates from the levels they would have reached without the additional capital.⁴⁶ The lower interest rates, in turn, reduced some of the financing costs U.S. firms face and may have even lowered their overall cost of capital. In addition, some U.S. firms have benefitted through direct investment by Japanese investors.⁴⁷ Since 1980, Japanese direct investment in U.S. businesses has increased from \$4.2 billion to \$53.4 billion by year end 1988. Most of this direct investment has been focused on establishing wholly-owned operations, but acquisitions of, or investment in, small American companies has become increasingly important in the overall direct investment pattern of Japanese companies. Some analysts estimate that this attention to smaller American firms is proving to be a financial boon to smaller U.S. companies because Japanese investors have demonstrated their willingness to bankroll projects that many U.S. commercial banks have been unwilling to finance.⁴⁸

⁴⁵ Kasman and Pigott, *Interest Rate Divergences Among the Major Industrial Nations*, p. 29.

⁴⁶ For additional information, see: U.S. Library of Congress. Congressional Research Service. *Japanese Investment in the United States*. Report No. 90-13 E, by James K. Jackson. Washington, 1990, p. 14-19.

⁴⁷ U.S. Library of Congress. Congressional Research Service. *Japanese Acquisitions of U.S. Companies*. Report No. 90-4 E, by James K. Jackson. Washington, 1990.

⁴⁸ Sun, Marjorie. *Investor's Yen For U.S. Technology*. *Science*, December 8, 1989, p. 1240.

JAPAN'S FOREIGN INVESTMENT LAWS AND THE T. BOONE PICKENS CASE

By Sung Yoon Cho and Constance A. Johnson ¹

CONTENTS

	Page
Summary	154
The 1979 Foreign Exchange and Trade Control Law.....	155
Background.....	155
Portfolio Investment.....	157
Inward Direct Investment.....	157
Notification Procedure.....	159
Technology Induction Contracts.....	160
Branch Offices.....	161
Wholly-Owned Subsidiaries.....	162
Joint Ventures.....	162
Administrative Guidance.....	163
Securities and Exchange Law.....	164
Antimonopoly Law.....	165
Background.....	165
Regulation of Holding Companies, Stockholding, and Mergers.....	166
Regulation of International Agreements.....	167
Transfer of Technology.....	167
Special Laws.....	167
Foreigners Serving on the Boards of Directors and Other Issues Raised by T. Boone Pickens.....	168
Structure of Board of Directors.....	168
Qualifications of Directors.....	169
Background in the Pickens Case.....	170
Pickens' Contentions.....	171
Japanese Response.....	171
Conclusion	172

SUMMARY

Since 1980, foreign investment in Japan has been subject to relatively few formal constraints. The policy in recent years has been that, except where specifically disallowed, all investment is permitted, with prior notification to the authorities. There are however four industries in which investment proposals must be reviewed on a case-by-case basis: agriculture, forestry, and fisheries; mining; petroleum; and leather. Foreigners are limited in the extent to which they can invest in other industries, such as banking, insurance, broadcasting, and utilities, under specific, separate legislation. In addition, under a broadly-written article of the 1979 Foreign Exchange and Trade Control Law, any investment that is considered

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by the relevant Ministries to be a threat to security, public order, the smooth operation of the economy, or international reciprocity may be subject to longer than usual waiting periods after notification. This provision has been applied to aircraft, space development, atomic energy, and manufacture of narcotics and vaccines. Wide scope is left under the law for the discretion of the authorities in their use of administrative guidance.

These informal aspects of the investment control system, which can be used to protect companies from tender offers, together with the practice of cross-shareholding and long time shareholding by institutions, make takeover bids unlikely to succeed.

The most celebrated recent investment by an American in a Japanese company is Mr. T. Boone Pickens' purchase of a large block of shares in Koito Manufacturing, an auto parts maker with ties to Toyota. Mr. Pickens has accused Koito of keeping him off the board of directors because he is not Japanese and of neglecting shareholders' interests in general. The Japanese response has been that although Pickens is now the largest shareholder, he does not control a majority of the voting stock and so can not simply demand representation on the board. Mr. Pickens has requested to review company financial records from April 1, 1979 to the present, and Koito has turned him down. The matter is now before the Tokyo District Court.

Foreign direct investment in Japan is still at a relatively low level, largely as a result of the informal barriers resulting from business transactions in the *keiretsu* (industrial grouping) system, cross-shareholding among allied companies on a long-term basis, and the small percentage of publicly traded stocks. In 1988, U.S. direct investment in all industries, including manufacturing and services, in Japan totaled only \$16.9 billion, or 5 percent of all U.S. investment in other countries.

THE 1979 FOREIGN EXCHANGE AND TRADE CONTROL LAW

BACKGROUND

Foreign investment in Japan today is primarily regulated by the Foreign Exchange and Trade Control Law, whose provisions are much more liberal than those of previous laws. During the Allied occupation, the Foreign Exchange Control Law and the Foreign Investment Law were enacted in 1949 and 1950 respectively. The basic provisions of these two laws remained virtually unchanged until 1980, and they were significant impediments to foreign investment. With Japan's increased economic strength, and with the idea of conforming with the worldwide trend towards liberalizing international capital movement, the application of statutory provisions and policies restricting foreign investment has been progressively relaxed or discontinued through the adoption of a series of liberalization programs.²

In 1979, largely due to United States pressure, the two laws were abolished and replaced with the new Foreign Exchange and For-

² The liberalization programs were launched in 1945-1955, 1963-1967, 1967-1973, 1973-1978, and 1978-1982.

eign Trade Control Law [hereinafter referred to as the 1979 Law],³ Japan has now, for the most part, shifted from a system of required prior approvals to a reporting system. Under the 1979 Law, which came into force December 1, 1980, foreign investment is allowed unless specifically prohibited; previously, such investment was prohibited unless specifically allowed. The 1979 Law is implemented by the Cabinet Order Concerning Direct Investment in Japan [Investment Cabinet Order],⁴ the Ministerial Ordinance Concerning Direct Investment in Japan [Investment Ministerial Ordinance],⁵ the Foreign Exchange Control Order,⁶ the Ministerial Ordinance Concerning Foreign Exchange Control,⁷ and others. Various Ministries of the government have a measure of discretion in the administration of the law; this generally takes the form of administrative guidance.

It should also be noted that even under the 1979 Law, certain industries remain unliberalized. The provisions on these restricted industries are not found in the 1979 Law itself, but rather are based upon the Japanese reservations to the OECD Code of Liberalization of Capital Movements,⁸ and the Cabinet Decision of December 26, 1980, incorporating those reservations. The government continues the policy of the old law of requiring a case-by-case review of investments in the following four industries: 1) agriculture, forestry, and fisheries; 2) mining; 3) petroleum; and 4) leather and leather manufacturing.⁹ Instead of the simple notice requirement applied to most industries under the 1979 Law, for these four industries, the requirements are closer to that of a request for a license.

In addition, there are other areas in which foreign investments are subject to a requirement of a licence, under special, separate laws. A further unchanged restriction was contained in the supplementary provision of the 1979 Law. Under these provisions, authorities may designate certain Japanese corporations that are listed in the stock exchange for which total foreign share of ownership over 25 percent of outstanding shares might have a harmful effect on the smooth operation of the Japanese economy or on national security, public order, or general safety. Eleven such companies were designated, listed by name. These supplementary provisions gave the Minister of Finance additional power to regulate foreign tender offers for Japanese corporations. These restrictions were considered an interim measure and were finally deleted entirely by the revision of the law in 1984.¹⁰ From July 1, 1985,

³ Law no. 228, December 1, 1949, as amended by Law no. 65, December 18, 1979, and last amended by Law no. 77, May 31, 1988. The most extensive studies on the subject in English are: Smith, Alan D. *Commercial Law & Exchange Control, Foreign Investment. CCH International: Japan Business Guide 1 & 2*. Chicago, Commerce Clearing House, 1988; and Matsushita, Mitsuo, and Thomas J. Schoenbaum. *Japanese International Trade and Investment Law*. Tokyo, University of Tokyo Press, 1989.

⁴ Cabinet Order no. 261, Oct. 11, 1980, as last amended by Order no. 48, Mar. 27, 1982.

⁵ Ministerial Ordinance no. 1 of Prime Minister's office and other Ministries, Nov. 20, 1980, as last amended by Ordinance no. 2, Nov. 20, 1985.

⁶ Cabinet Order no. 260, Oct. 11, 1980, as last amended by Order no. 242, Aug. 9, 1988.

⁷ Ministerial Ordinance no. 44 of the Ministry of Finance, Nov. 15, 1980, as last amended by Ordinance no. 65, Nov. 19, 1987.

⁸ Organization of Economic Cooperation and Development, *Code of Liberalization of Capital Movements, Annex B: Reservations to the Code of Capital Movements and Notes Concerning Payments Channels*, June 1978, p. 74.

⁹ The reservation of leather and leather manufacturing is based on the traditional dependence on that industry of a Japanese minority group, known as *burakumin*.

¹⁰ Law no. 44, May 25, 1984.

Japan adopted a "same day" procedure and publicly announced the extensive list of industries to which it would apply and the few exceptions.¹¹

The 1979 Law covers, among other things, foreign exchange transactions, capital transactions, direct investment and technology induction, and foreign trade. Two types of investment are covered by the new legislation: portfolio investment and inward direct investment, that is, cases where the investment is likely to involve participation in management decisions.

PORTFOLIO INVESTMENT

If an investor is interested in a regular return on the investment without seeking participation in management, portfolio investments are the simplest form. Portfolio investment is regarded as a capital transaction under the 1979 Law and is defined as the acquisition of less than 10 percent of the shares of any company listed on an exchange or traded over the counter.¹² Non-residents must submit prior notice to the Minister of Finance, via the Bank of Japan, within ten days prior to the transaction, in order to acquire Japanese stocks.¹³ Once the Minister receives the prior notice, a non-resident may purchase the stocks immediately, without the waiting period required for inward direct investment, described below. If however the stocks are acquired through a designated security company, no prior notice is required.¹⁴ In practice, almost all portfolio investments are made through designated securities firms, so the prior notice requirement is not usually applied. The rationale for this exception is that transactions could be easily traced by reports from the designated securities companies. As of 1989, there were 96 such companies designated by the Minister of Finance, 50 Japanese and 46 foreign.¹⁵ These companies are required to submit daily and monthly reports concerning securities transactions to the Ministry of Finance, via the Bank of Japan.¹⁶

INWARD DIRECT INVESTMENT

Under the 1979 Law and the Investment Cabinet Order, certain parties taking specified actions are considered to be foreign investors: ¹⁷ 1) non-resident individuals; 2) juridical persons, such as corporations or partnerships, which are established in foreign countries or for which the majority of the officers are non-residents; and 3) Japanese corporations with majority ownership (50 percent or more) directly or indirectly held by non-resident individuals or foreign juridical persons.

¹¹ Art. 5, ¶ 2, items 1 & 2 of the Investment Ministerial Ordinance, as amended by Ordinance no. 2, November 20, 1985 (effective July 1, 1985) and Joint Ministerial Notification no. 1, November 20, 1985, issued thereunder. It lists over 300 industries in seven categories, along with certain exceptions.

¹² Art. 20, item 5 of the 1979 Law; Art. 2, ¶ 3 of the Investment Cabinet Order.

¹³ Art. 12, ¶ 1 of the Foreign Exchange Control Order; Art. 9, ¶ 1, item 4 of the Ministerial Ordinance Concerning Foreign Exchange Control.

¹⁴ Art. 22, ¶ 1 of the 1979 Law.

¹⁵ Tatsumura, Zen. *Gaikokujin ni yoru kabushiki shutoku to hokisei* [Legal Control of the Acquisition of Stocks by Aliens]. *Shoji homu*, no. 1181, May 15, 1989. p. 58.

¹⁶ Art. 14, Ministerial Ordinance Concerning the Report on Foreign Exchange Transactions, Ordinance of the Ministry of Finance no. 47, November 27, 1980.

¹⁷ Art. 26, ¶ 1 of the 1979 Law.

Direct investments that must be reported by these foreign investors include:¹⁸

- (1) any acquisition of stock in an unlisted company, irrespective of the quantity or ratio of acquisition;
- (2) assignments of shares held by non-resident individuals to any of the parties specified above, in cases where the shares had been owned before the seller became a non-resident;
- (3) acquisition of shares in corporations that are listed on a stock exchange, including companies listed in the over-the-counter market, if the shares acquired amount to 10 percent or more of the issued and outstanding shares of the corporation; (Notice is also required when the acquisition is less than 10 percent, if that acquisition, taken together with the holdings of another juridical person who has a special relationship with the acquirer, would amount to 10 percent. A "special relationship" is defined as a continuous economic relationship through stock ownership or family relationship, or similar relationship as determined by the Investment Cabinet Order.)
- (4) agreements to change the business objectives of a corporation, when the agreement is made by a party that holds more than one-third of the shares in the corporation;
- (5) establishment of a branch in Japan, except in the industries already subject to prior approval requirements under other laws: banking, insurance, long-term credit, gas, electricity, and securities companies;
- (6) loans of over ¥200,000,000 for one to five years, or loans of over ¥100,000,000 for more than five years, by foreign investors, extended to corporations having a principal office in Japan;
- (7) certain acquisitions of corporate debentures, other than those that are both issued and payable abroad; and
- (8) any acquisition of shares of a juridical person established by special law.

Under the Investment Cabinet Order, the following transactions are exempted from the requirement of advance notice:¹⁹

- (1) acquisitions of shares from another foreign investor;
- (2) acquisitions of shares of stock through inheritance;
- (3) acquisition resulting from a merger with a company that holds stock issued by a company not listed on the stock exchange;
- (4) stockholders' acquisitions of new shares through a transfer of reserve funds to capital, a split, consolidation, or conversion of stock owned, or a dividend;
- (5) acquisitions of shares floated abroad;
- (6) acquisitions of new shares through the conversion by the owner of convertible debentures, in connection with an issue or offer for subscription abroad by a listed company;
- (7) acquisitions of new shares through the exercise of preemptive rights to new shares; and
- (8) additional acquisitions as prescribed by Ordinance of the competent Minister.

¹⁸ Art. 26, ¶ 2 of the 1979 Law; art. 2, ¶ 1-9 of the Investment Cabinet Order.

¹⁹ Art. 2, item 13 of the Investment Cabinet Order.

NOTIFICATION PROCEDURE

Prior notice of an investment, when it is required, should be given to the Minister of Finance and the minister with jurisdiction over the enterprise concerned via the Bank of Japan. Notice must be not more than three months in advance of the proposed acquisition and must be given by means of a resident proxy. The notice should state the name, address, nationality, and occupation of the investor and should describe the purpose of the business, the reason for the investment, the amount of money involved, and the date of the action.²⁰ The 1979 Law specifies that foreign investors must wait for 30 days before proceeding with the investment, but under the Investment Cabinet Order, this waiting period had been reduced to 15 days when the transaction involved was deemed not particularly harmful. On June 20, 1985, however, by a revision of the Investment Cabinet Order, Japan adopted a "same day procedure," effective July 1, 1985, under which the waiting period is eliminated and there is no government review of specific investments. According to a Ministerial Ordinance jointly issued at the same time by the Prime Minister's office and other Ministers, same day procedure is permitted for almost all industries, with certain exceptions.²¹ The exceptions, in which share acquisitions remain subject to the 15-day waiting period, include cheese manufacture, biotechnology, explosives, atomic energy, weapons, space development, passenger transportation, oil storage, and liquefied natural gas.

The Ministries have 15 days in which to investigate the investment in these exceptional cases. If it is determined that the investment is a threat to Japanese security, public order and safety, the smooth operation of the economy, or international reciprocity on the subject of foreign investment, as set forth in article 27, paragraph 1 of the 1979 Law, the 15-day waiting period may be extended to as much as four months.

Prior to issuing a recommendation to change or cancel the planned investment, the Ministries must consult with the Committee on Foreign Exchange and Other Transactions, established as an auxiliary organ of the Ministry of Finance. If the Committee deems that it needs more time in which to consider the transaction, it may add one more month to the waiting period; the total waiting period may thus be up to five months. The foreign investor will be notified of any decision and has ten days to reply. If the investor does not agree to comply with any recommended change, the Ministries may order suspension or modification of the plan.²² It appears that although technically, approval is not required for inward direct investment under the 1979 Law, the foreign investor may not proceed until he or she has cleared the notification stage. The result is a process very similar to that of obtaining approval.²³

²⁰ Art. 26, § 3 of the 1979 Law; art. 2, § 10-12 of the Investment Cabinet Order; art. 2, § 3 of the Investment Ministerial Ordinance.

²¹ Art. 5, § 2, items 1 & 2 of the Investment Ministerial Ordinance, and Joint Ministerial Notification no. 1, November 20, 1985. See: Way, Griffith, Rosser H. Brockman, and Masatami Otsuka. Business Operation in Japan. In: *Tax Management*. Washington, Bureau of National Affairs, 1984, p. A1. This publication is Foreign Income Portfolios no. 51-7, as revised July 3, 1989.

²² Art. 27, § 2-4 of the 1979 Law.

²³ Smith, *CCH International*, p. 65,601.

The officials who review the notice required by the 1979 Law interpret the criteria in article 27, paragraph 1 quite broadly in their administrative guidance. There has been no public announcement of which industrial sectors fall under the criteria, though Japanese sources have listed business categories informally.²⁴ The United States Trade Representative has stated that Japan heavily regulates aircraft, space development, atomic energy, and the manufacture of narcotics and vaccines.²⁵ It has been reported, however, that no formal recommendations or orders to alter or suspend a transaction have been given since the 1979 Law came into force.²⁶

In addition to prior notice, a foreign investor is required to submit subsequent reports within 30 days of the actual acquisition of the shares and the transfer in whole or in part of the shares for which notice was previously given. These later reports must also go to the Minister of Finance and the concerned Ministries via the Bank of Japan.²⁷

TECHNOLOGY INDUCTION CONTRACTS

Technology induction contracts concern the transfer or license of industrial or intellectual property rights, including computer software, from a non-resident to a Japanese resident. The Law covers agreements on any type of trade know-how, whether the contract pertains to the initial induction or to any subsequent change in or renewal of the relationship. These contracts are treated as inward direct investments under the 1979 law, with reports required, because of the perception that foreigners could acquire undue control over Japanese industry through control of patents, copyrights, utility models, and other forms of expertise or trade secrets.²⁸

Transfers of technology between foreign corporations and their own Japanese subsidiaries are also subject to the reporting requirements. When a foreigner acquires shares in a Japanese corporation that constitute inward direct investment, it is the sole responsibility of that foreign investor to make reports to the authorities. In the case of technology induction, however, it is the duty of both the resident and the non-resident parties to the agreement to submit prior notice. Thus even when the non-resident contracting party does not enter Japan, the notice requirement can be applied without any problem of jurisdiction.²⁹ In most cases, there is no waiting period, and the parties may proceed with the agreement immediately after the report is filed. There are, however, 12 specifically designated areas of technology for which there is a waiting period

²⁴ Two Japanese writers indicated that Japan may list the following business categories as non-liberalized in accordance with art. 3 (i)-(ii) of the OECD Code of Liberalization of Capital Movements: (1) arms, gun powder, atomic energy, aircraft, and space development, to protect national security and (2) narcotics manufacturing, vaccine manufacturing, and security services to protect public order and safety. Tatsumura, *Legal Control*, no. 1182, May 25, 1989, p. 38; and Fukui, Hiroo. *Shokai gaikoku kawase kanriho* [Community on the Foreign Exchange and Foreign Trade Control Law]. Tokyo, Kinyu Zaisei Jijo Kenkyukai, 1981. p. 378. Other publications give different lists.

²⁵ U.S. Office of the United States Trade Representative. *1990 National Trade Estimate Report On Foreign Trade Barriers*. Washington, 1990. p. 119.

²⁶ Tatsumura, *Legal Control*, no. 1182, May 25, 1989, p. 37. See also: Smith, *CCH International*, p. 65,602.

²⁷ Art. 4 of the Investment Ministerial Ordinance.

²⁸ Smith, *CCH International*, p. 65,701.

²⁹ *Ibid.*, p. 65,702.

of 15 days, if the total compensation to be paid for the technology exceeds ¥100,000,000. This waiting period can be extended to four or five months; the procedures are similar to those described above for inward direct investment. These 12 industries are: 1) airplanes; 2) arms; 3) gunpowder; 4) atomic energy; 5) space development; 6) electronic computers; 7) large-scale circuits and new memory devices for the next generation of electronic computers; 8) laser generators, semi-conductor light emitting devices, photo-detection devices, optical fibers, and optical circuits; 9) amorphous material and superconductive material; 10) salt electrolysis not using the mercurial method; 11) sea-bottom oil production; and 12) leather.³⁰ In addition to prior notices, the parties may be required to submit completion reports after the transactions.³¹

BRANCH OFFICES

A branch office is a wholly-owned entity that is not incorporated but is permitted to carry on continuing business for a foreign corporation. Prior to 1980, branch offices had not been treated as direct investments and had been subject to restrictions on the transfer of capital to Japan. Under the 1979 Law, the establishment of these offices is now treated as direct investment, subject to prior notification procedures. The Ministry of Finance must be notified within three months of when business operations will begin at the branch, and the project is eligible for either the same-day procedure or the 15-day waiting period required for direct investment.³²

In addition, a branch establishment report, disclosing the financing plan for the branch, as well as the nature of the business and the planned scope of activities for the branch, together with a copy of the balance sheet and earnings statement of the foreign company, must be submitted to the Bank of Japan.³³ The Bank in turn consults the Ministry of Finance, the Ministry of International Trade and Industry (MITI), and other appropriate ministries. Since there are no formal criteria for acceptance of the plan to set up a branch office, the ministry officials have discretionary power.

The foreign company must also register the branch with the local office of the Ministry of Justice. This registration is to satisfy the requirement of the Commercial Code that a person must be appointed as a legal representative with complete authority to bind the company regarding any operations in Japan, for any foreign business intending to engage continuously in commerce in Japan.³⁴ If the branch manager is replaced, that change must also be registered.

Once a foreign corporation has a Japanese branch established, it is subject to income tax on any income earned in Japan; remittances of profits to the parent corporation abroad must also be re-

³⁰ Joint Ministerial Notification no. 3, November 27, 1980. The text appears in Smith, *CCH International*, p. 69,102-69,151.

³¹ Art. 67 of the 1979 Law and art. 9 of the Investment Cabinet Order.

³² *Tax Management*, p. A2-A4.

³³ Matsushita and Schoenbaum, *Trade and Investment*, p. 124.

³⁴ Art. 479 of the Commercial Code, Law no. 73, May 3, 1911, as last amended by Law no. 74, June 9, 1981. It is illegal to start business before the representative has been appointed and the business office is registered in accordance with art. 481 of the Commercial Code.

ported. The branch office therefore must also notify the tax office within two months of its opening date.

WHOLLY-OWNED SUBSIDIARIES

Before 1973, the establishment of a subsidiary in Japan by a foreign investor was subject to very close government scrutiny. Under the policy of 1973, the fifth step in a series of six toward liberalized investment law, the Japanese government granted "automatic approval" of investments of up to 100 percent in the new companies (direct investment) and existing companies (investment for participation in management and portfolio investment) for all but four industries. This 1973 policy was considerably less restrictive than that of 1971, which, with certain exception, had limited foreign investment to 50 percent in new companies and under 25 percent in existing companies (a maximum of 10 percent per individual foreign investor).

Since the establishment of the 1979 Law, in principle there are no restrictions on the establishment of a wholly-owned subsidiary, unless the subsidiary is established by a non-Japanese corporation acting as a holding company in violation of the Antimonopoly Law.³⁵ Notification of the acquisition of stock or shares must be filed with the Minister of Finance. Notification procedures are similar to those described above for inward direct investment and include, among others, tax reports, reports for tax treaty privileges, and employee welfare reports.

Subsidiaries must be established as one of the four types of juridical entities allowed under the Commercial Code and the Limited Liability Company Law:³⁶ 1) partnership company (*gomei kaisha*); 2) limited partnership company (*goshi kaisha*); 3) stock company (*kabushiki kaisha*); or 4) limited liability company (*yugen kaisha*). The stock company form is the one most frequently employed for subsidiaries of foreign corporations in Japan.

Although the 1979 Law treats a subsidiary as an inward direct investment, it is regulated in accordance with the Japanese Commercial Code. Thus, while the foreign parent company has control of its subsidiary, basic principles of Japanese company law must be observed.

JOINT VENTURES

One of the most important forms of direct foreign investment in Japan continues to be the equity joint venture. The Japanese view equity joint ventures as long-term, cooperative business relationships that are conducted through the formation of a business entity, usually incorporated under Japanese law as a stock company (*kabushiki kaisha*) or occasionally as a limited liability company (*yugen kaisha*), although it is possible to have a joint venture in the form of an unincorporated association, a general partnership (*kumiai*). Generally, the advantage to the foreigner in doing business as a joint venture is that the company may have easier access to the Japanese market, to suppliers, and to Japanese management

³⁵ See *Infra*, section on regulation of holding companies, stockholding, and mergers.

³⁶ Law no. 74, April 5, 1933, as last amended by Law no. 74, June 9, 1981.

techniques and know-how. For the Japanese side, the advantage is likely to be in the technology, capital, or intellectual property rights brought in by the foreign partner.³⁷

For the most part, the rules applicable to the formation of wholly-owned subsidiaries apply as well to joint ventures. The contributions of the foreign partner are considered inward direct investment and are subject to the requirements of the 1979 Law. Share acquisitions by foreigners in the joint venture must therefore be reported to the Ministry of Finance within three months of the proposed acquisition, through the Bank of Japan. Any technology induction contracts signed in conjunction with the formation of the joint venture must also be reported via the Bank.

ADMINISTRATIVE GUIDANCE

In practice, the regulation of foreign investment in its many forms, as outlined above, is through administrative guidance, or informal regulation by government authorities.³⁸ The Ministries, the Bank of Japan, and other organs involved in approvals and reviews under the 1979 Law and the implementing Orders, take unofficial actions to make transactions conform with the regulations and ministry policies.

The role of the Bank of Japan, for example, illustrates the workings of administrative guidance. Many of the reports or notices required by statute go to the appropriate Ministry via the Bank of Japan. Rather than having a formal review of papers upon receipt, the Bank will generally look over the submission informally, perhaps checking with the various Ministries concerned. If the investment proposal is unsatisfactory in some way, either because some vital information is not included or because the proposal does not conform to the 1979 Law, the foreign investor will be advised on how to modify it. The guidelines used by the various agencies involved in screening documents are not published.

Compliance with administrative guidance is not legally required, but agencies like the Bank of Japan could use delaying tactics, such as refusing to stamp documents as received unless and until their contents are satisfactory. Those who do not follow administrative guidance, then, may find their paperwork hopelessly stalled.

The outcome of this system is that there have been no formal rejections of investment proposals. Since all the real administrative action is on an informal basis, in the form of administrative guidance, there are no formal negative determinations that would be grounds for appeal. Litigation over negative decisions is unlikely, and court interpretations of the 1979 Law, which could be referred to in future transactions or disputes, are quite rare. As a result, the ministries and the organs such as the Bank of Japan that play a major role in the process have a great deal of flexibility to decide things on a case-by-case basis.

³⁷ Matsushita and Schoenbaum, *Trade and Investment*, p. 129.

³⁸ See: Smith, *CCH International*, p. 60,104. See also: Smith, Alan. The Japanese Foreign Exchange and Foreign Trade Control Law and Administrative Guidance: The Labyrinth and the Castle. *Law and Policy in International Business*, v. 16, 1984. p. 417.

SECURITIES AND EXCHANGE LAW

The Securities and Exchange Law of 1948 applies equally to Japanese and foreign investors. It is similar to the U.S. Securities Act of 1933 and the Securities and Exchange Act of 1934. The Law is administered by the Ministry of Finance, although a Securities and Exchange Commission existed from 1948 to 1952. In 1971, the Securities and Exchange Law³⁹ was revised to incorporate new provisions (art. 27-2 through art. 27-8) dealing with takeover bids or tender offers (*kokai kaittsuke*, open stock acquisition system), widely used in other countries. A takeover bid can be used as a means of achieving a merger between corporations or as a device for friendly or unfriendly takeovers of existing corporations. Although the 1971 revision was mainly intended to cope with foreign enterprises, the revision is applicable to both foreign and domestic corporations. Since that time, only three tender offers have been reported, one by Bendix International Finance Corporation, another by Okinawa Electric Power Company, and a third by Minebea.⁴⁰ If a foreign tender offer involves acquisition of 10 percent or more of the shares of a Japanese listed company, the foreign investor must give the prior notice required for inward direct investment to the Ministry of Finance, under the 1979 Law.⁴¹

Under the Securities and Exchange Law, in order for a tender offer to be effective, with certain exceptions, a tender offer registration statement must be filed with the Minister of Finance. As a rule, the registration becomes effective 10 days after the date on which the Minister accepts the statement.⁴² Before accepting it, the Minister reviews the registration statement and may issue an order to alter or amend the statement. The Minister may inspect the files of the person making the tender offer and require additional reports or materials.⁴³

There are several reasons for the rarity of Japanese or foreign takeovers in Japan. Under the reporting and review system for all direct investments required by the 1979 Law, if the investment is in the form of a hostile takeover, "the system is likely to be used to protect the target company."⁴⁴ It has also been argued that one reason for the lack of popularity of the tender offer is that "an acquisition of stock could concentrate enterprises in violation of the Antimonopoly Law."⁴⁵ Furthermore, employees tend to resist takeover bids; the lifetime employment practice results in a strong sense of loyalty to the company. The Japanese people as a whole

³⁹ Law no. 25, Apr. 13, 1948, as last amended by Law no. 75, May 31, 1988.

⁴⁰ Muramatsu, Hisako. Prying Open the Japanese Market: Tender Offers and the Legal System in Japan. *Loyola of Los Angeles International and Comparative Law Journal*, v. 11, 1989, p. 600-602. See also: Ames, Walter. Buying a Piece of Japan, Inc.: Foreign Acquisitions in Japan. *Harvard International Law Journal*, v. 27, 1986, p. 553-554.

⁴¹ Misawa, Mitsuru. Merger and Acquisition Activities in Japan: the Present and the Future. *Vanderbilt Journal of Transnational Law*, v. 19, 1986, p. 788.

⁴² Loss, Louis, Makoto Yazawa, and Barbara Ann Banoff, eds. *Japanese Securities Regulation*. Tokyo, University of Tokyo Press, 1983, p. 179.

⁴³ Revision of the Securities and Exchange Law is currently under legislative consideration. The proposed legislation would, among other things, ease restrictions on tender offers by eliminating the requirement of ten days advance notice to the Ministry. On the other hand, it would make it more difficult for speculators to acquire very large holdings from third parties the way T. Boone Pickens did. *New York Times*, February 1, 1990, p. D20.

⁴⁴ Smith, *CCH International*, p. 12,251.

⁴⁵ Loss, Yazawa, and Banoff, *Securities*, p. 172.

are not familiar with the system and have an antipathy to attempts to take over the management of another company.⁴⁶

The most important reason for the scarcity of takeovers is the existence of cross-shareholding, which insures a cooperative relationship among member firms of certain informal and *keiretsu* allied groups in Japan. Cross-shareholding also serves to protect management from reprisal on the part of dissatisfied major outside shareholders, because the collective majority shareholders back management. If the stock price of a member firm drops so low that needed capital cannot be raised through a public offering of new shares, financial institutions within the *keiretsu* will lend the needed funds.⁴⁷

Cross-shareholding or stable corporate shares operation is unique to Japan. Although the practice began as early as 1950, it became very widespread to prevent the foreign takeovers that were expected as a result of capital liberalization after Japan joined the OECD in 1964. The process was led by Toyota Motor Company in the ten years from 1965 to 1975.⁴⁸ As a result, domestic and foreign takeover attempts have not been successful. Institutions or stable shareholders tend to hold each other's shares on a long-term basis, as a sign of support and to promote business relations, as well as to discourage any takeover attempts. If they are to sell, the institutions must inform the company that issued the stock, and the issuing company then may arrange sale to another institution.

The financing of Japanese companies is generally through bank loans, rather than the raising of capital through new stock issuances or bond offerings. This, together with the fact that the many stocks held by stable shareholders, frequently banks or friendly companies, are not available to the public, means that relatively fewer shares are floating on the market. Outside investors find it hard to purchase enough stock in a company to facilitate a tender offer.⁴⁹

ANTIMONOPOLY LAW

BACKGROUND

Japan's Law Relating to the Prohibition of Private Monopoly and Methods of Preserving Fair Trade,⁵⁰ better known as the Antimonopoly Law, was enacted in 1947. The original 1947 law was patterned after the Sherman Antitrust Act, the Clayton Act, and the Federal Trade Commission Act of the United States. It combined provisions from these U.S. statutes, but today it differs from Amer-

⁴⁶ Kano, Takahiko. *Wagakuni kigyo no kigyo baishu no genjo to doko* [The Present State and Trends of Takeovers of Enterprises by Japanese Enterprises]. *Shoji homu*, no. 1145, May 15, 1988, p. 33.

⁴⁷ Wiener, Arturo, and Edward Knight. *The Stock Market in Japan: An Overview and Analysis*. Report No. 89-306 E. Washington, Congressional Research Service, 1989, p. 17.

⁴⁸ Okumura, Hiroshi. *Nihon no kabushiki shijo* [Japanese Stock Markets]. Tokyo, Diyamondo, 1988, p. 64.

⁴⁹ Kobayashi, Takeo. *Kigyo baishu no jissai to tetsuzuki* [Practice and Procedures Concerning Takeovers of Enterprises]. Tokyo, Bijinesu Kyoiku Shuppansha, 1983, p. 397.

⁵⁰ Law No. 54, April 14, 1947, as last amended by Law No. 93, effective December 4, 1986. For background information, see: Cho, Sung Yoon. *Foreign Trade and the Antitrust Laws: Hearings Before the Subcomm. on Antitrust and Monopoly of the Senate Comm. on the Judiciary*. 89th Cong., 1st Sess., Pt. 2, 1965, p. 977-1915.

ican law in many respects.⁵¹ The Antimonopoly Law is enforced by the Fair Trade Commission (FTC), an independent regulatory agency of a type unknown to the Japanese system of administration prior to its establishment. It should be noted that article 65 of the 1979 Law states that nothing in the provisions of this is to be construed to affect the application of the Antimonopoly Law or the power exercised by the FTC.

REGULATION OF HOLDING COMPANIES, STOCKHOLDING, AND MERGERS

Chapter 4 (arts. 9 through 18) of the Antimonopoly Law contains the provisions concerning restrictions on holding companies, stockholding, interlocking directorates, mergers or consolidations, and the acquisition of businesses (assets and management). These provisions, applicable to both domestic and foreign companies, can affect investment.⁵² Article 9 of the Law prohibits the establishment of a holding company and also prohibits any company, including foreign companies, from becoming or operating as a holding company. A holding company is defined as one whose principal business is to control business activities of one or more Japanese companies or subsidiaries by means of stockholding, including partnership shareholding. Therefore, a company that has its own business but also owns stocks of another company is not regarded as a holding company within the meaning of Article 9.⁵³

Article 10 prohibits a company from acquiring stock in another company if the acquisition causes a substantial restraint of competition in a particular field of trade. On the basis of the Guidelines for Handling Business Concerning Shareholdings of Companies, issued on September 1, 1981,⁵⁴ the FTC reviews the proposed acquisition of stocks to determine whether it will bring about a horizontal integration between rival companies or a vertical integration between the manufacturers and the distributors. The prior notices required for inward direct investment and filed with the Finance Minister and other ministries are circulated to the FTC.⁵⁵ The FTC review usually begins after reviews are made by the Finance Minister and other ministers concerned. The FTC also has the power to order cancellation or modification of the proposed investment. Article 10 also provides that a foreign company engaged in business activities other than financial that owns stock in a Japanese company must file a report of its holdings with the FTC within 30 days after execution.

Article 11 places certain restrictions on the holding of shares by foreign and domestic financial institutions; specifically, banks may not hold more than 5 percent of the outstanding shares of any Japanese corporation and insurance companies may not hold more than 10 percent of such shares.

⁵¹ Iyori, Hiroshi. Antitrust and Industrial Policy in Japan: Competition and Cooperation. In: Saxonhouse and Yamamura, eds. *Law and Trade Issues of the Japanese Economy*. Seattle, University of Washington Press, 1986. p. 56.

⁵² Kano, Takahiko. Kigyo baishu to dokusen kinshiho [Take-Over of Enterprises and the Antimonopoly Law]. *Shoji homu*, no. 1179, April 15, 1989. p. 38.

⁵³ Matsushita and Schoenbaum, *Trade and Investment*, p. 158.

⁵⁴ Kano, *Take-over*, p. 38.

⁵⁵ Nishimura, Toshiro. Acquisitions in Japan. *Legal Aspects of Doing Business With Japan*. New York, Practising Law Institute, 1981. p. 134.

Article 15 bans a merger of companies if the merger is likely to result in a substantial restraint of competition. The company effecting a merger is required to give the FTC 30-day notice before the merger takes effect.

REGULATION OF INTERNATIONAL AGREEMENTS

Under Article 6 of the Antimonopoly Law, an entrepreneur is banned from entering into an international agreement or international contract that contains provisions constituting an unreasonable restraint of trade or an unfair business practice and is required to file a report with the FTC. Since most joint venture agreements and collateral agreements between foreign and Japanese investors fall within the definition of international agreements set forth in Article 6, the investor must file a report with the FTC within 30 days of the date of conclusion. Similarly, an agreement between a foreign company's Japanese branch and a Japanese company, or an agreement between a Japanese subsidiary of a foreign company and a foreign company is regarded as an international agreement.⁵⁶ If the FTC finds that the agreement in question constitutes an unreasonable restraint of trade or an unfair business practice, it may advise the parties to alter the agreement. If the parties fail to comply with this advice, the FTC is empowered to take corrective measures.

TRANSFER OF TECHNOLOGY

Technology licensing agreements concluded between foreign and Japanese companies raise antitrust problems. To implement Article 6 of the Antimonopoly Law, the FTC published the Guidelines for International Licensing Agreements in 1968.⁵⁷ According to the guidelines, an international licensing agreement may be considered an unfair business practice if its provisions contain any of the following nine restrictions: on (1) export area, (2) export price or export volume, (3) competing products or technology, (4) purchase of raw materials or parts (tie-in clauses), (5) distribution channels, (6) resale price, (7) improvement or invention (grant-backs), (8) the charging of excessive royalties (royalties on goods that do not utilize licensed technology), and (9) the quality of raw materials, parts, etc. If the FTC finds that the agreement in question contains one or more of these restrictions, it will intervene to order deletion of the illegal provisions.

SPECIAL LAWS

Certain industries which are tied to public interests and security, such as banking, insurance, civil aviation, broadcasting, and utilities are regulated through licensing under special statutes. These statutes specifically limit the holding of stocks by foreign nationals. The industries involved are commonly excluded from international

⁵⁶ Matsushita and Schoenbaum, *Trade and Investment*, p. 169-170.

⁵⁷ Japan. Fair Trade Commission. *Antimonopoly Legislation and the Activities of the Fair Trade Commission*. Tokyo, 1969. p. 87. See also: Yanagida, Yukio. *Joint Venture. Doing Business in Japan VII*, v. 4. Kitagawa, ed., 1982. p. 3-47. The FTC announced two more guidelines for international licensing agreements, 1) on patent and know-how licensing agreements, and 2) on sole import distributorship agreements.

investment relations. For example, Nippon Telegraph and Telephone Company⁵⁸ and International Telephone and Telegraph Company⁵⁹ limit the shareholders to Japanese nationals or Japanese corporations in which 50 percent or more of the shareholders, officers, capital, or voting rights are not held by foreign nationals or foreign corporations.

Under the provisions of the Wire Television Broadcast Law,⁶⁰ any person desiring to install wire television broadcast facilities (including cable) or engage in a television broadcast business by using such facilities is required to obtain permission from the Minister of Posts and Telecommunications. However, the Minister may not give permission to the following: (1) persons who do not have Japanese nationality; (2) a foreign government or its representatives; (3) a foreign corporation or group; (4) persons mentioned in the above three categories who occupy managerial positions or who exercise more than one-fifth of the voting rights in any domestic corporation or group (Art. 5). The Broadcast Law⁶¹ provides that those mentioned in (1) through (3) may be denied the entry of a change of shareholders in the register of shareholders.

Under the Radio Wave Law,⁶² which regulates the establishment of broadcast facilities, items (1) through (3) mentioned above are the same, but item (4) provides that the Minister may not give permission to persons mentioned in the above three categories who are the representatives officers or who constitute more than one-third of the officers or exercise more than one-third of the voting rights in any domestic corporation or group.

Other special statutes which regulate foreign participation through licensing include the Bank Law (Law no. 59, June 1, 1981), the Law Concerning Foreign Insurers (Law no. 184, June 1, 1949), the Gas Business Law (Law no. 51, May 31, 1954), the Electric Business Law (Law no. 170, July 11, 1964), and the Law on Foreign Securities Dealers (Law no. 5, March 3, 1971).

FOREIGNERS SERVING ON THE BOARDS OF DIRECTORS AND OTHER ISSUES RAISED BY T. BOONE PICKENS

T. Boone Pickens' purchase of shares in Koito Manufacturing has become the best known and most controversial recent case of foreign investment in a Japanese company. Disputes between Pickens and Koito management, some of which are still pending, illustrate a range of possible difficulties faced by foreign investors in Japan.

STRUCTURE OF BOARD OF DIRECTORS

Japanese companies usually have a chairman of the board, a president, a vice-president, one or more executive directors, and several managing directors that form a management committee. The Committee typically meets once a week and determines policy for the running of the company. The president is frequently also

⁵⁸ Art. 4, § 1 of the Nippon Telegraph and Telephone Company Law, Law no. 85, December 25, 1984, as amended by Law no. 9, March 30, 1985.

⁵⁹ Art. 4, § 1 of the International Telegraph and Telephone Company Law, Law no. 301, August 7, 1952, as last amended by Law no. 87, December 25, 1984.

⁶⁰ Art. 3 & 5, Law no. 114, July 1, 1972, as last amended by Law no. 29, May 6, 1988.

⁶¹ Art. 53-2, Law no. 132, May 2, 1950, as last amended by Law no. 29, May 6, 1988.

⁶² Art. 5, Law no. 131, May 2, 1950, as last amended by Law no. 29, May 6, 1988.

the chief executive of the company and a representative director. The board chairman may also be an active executive, with representative director status. In describing the Japanese board of directors, one expert in the field stated:

Typically, there are no outsiders on the board, except as found in *keiretsu* exchanges. It is not only an elite, closed group drawn from within the company, but also coextensive with top management, because . . . each director is also a busy operational officer in charge of a division or plant. Such a board nurtures solidarity and assures collectively an intimate inside knowledge over the entire range of corporate operations.⁶³

The structure is determined by the company rules as laid out by the board of directors or by custom; it is not dictated by any provisions of the Commercial Code. Specifically, the Code is silent on the issue of exclusions of foreigners from the board. The Commercial Code requires that the directors of a company be appointed by a general meeting of shareholders and that the articles of incorporation for a company can not provide that the directors must be shareholders.⁶⁴ In other words, under the Commercial Code, it is unlawful to confine directorships to shareholders only.

QUALIFICATIONS OF DIRECTORS

There has already been a case concerned with the question of foreigners serving as directors. As a measure to protect the company from foreign take-over, in 1968, Toyota Motor Corporation amended its charter to the effect that directors and auditors had to be Japanese nationals. When this was challenged in a shareholder suit, the Nagoya District Court, in 1971, upheld the clause of the charter, stating that the exclusion of foreigners from equal participation in private organizations was not unconstitutional.⁶⁵ In such cases, the courts may only intrude where rules are "unreasonable," and the court further held that it was reasonable to limit the representation of foreigners in the management of Toyota Motor. It is generally thought by a majority of scholars that articles of incorporation can restrict the qualification of directors to Japanese nationals within reasonable limits.⁶⁶ Toyota later deleted the charter clause. It is unlikely that Japanese courts would come to the same decision today, given the national policy of liberalizing investment options.⁶⁷

⁶³ Henderson, Dan F. *Foreign Enterprises in Japan*. Chapel Hill, University of North Carolina Press, 1973. p. 113.

⁶⁴ Art. 254, ¶ 1 & 2.

⁶⁵ Decision of Nagoya District Court, April 30, 1971, as cited in *Shoji homu*, no. 560, 1971. p. 6. Article 12 of the Constitution provides that "All the people are equal under the law, and there shall be no discrimination in political, economic, or social relations because of race, creed, sex, social status, or family origin."

⁶⁶ Suzuki, Takeo, and Akio Takeuchi. *Kaishaho* [Corporation Law]. Tokyo, Yuhikaku, 1987. p. 243; and, Inaba, Takeo, et al. *Jitsumu sodan kabushiki kaishaho* [Manual of Stock Company Law], v. 2. Tokyo, Shoji Homu Kenkyukai, 1987. p. 4.

⁶⁷ Tastuta, Misao. Restrictions on Foreign Investment in Japan. *East Asian Executive Reports*, v. 3, May 1981. p. 15-18. The author states that to his knowledge, at that time no other corporations had similar charter provisions on foreigners. Currently Sony has two foreigners on the board of directors, one American and one German. Mitsubishi Corporation has no charter clause prohibiting foreigners on the board.

BACKGROUND IN THE PICKENS CASE

T. Boone Pickens, an American investor, has been openly critical of the Japanese system of doing business. He is now the largest shareholder in the Japanese auto parts company, Koito Manufacturing, and is involved in several disputes with the management.

Pickens purchased approximately three-quarters of a billion dollars worth of Koito Manufacturing stock from a person known as a speculator in March 1989. It was the first time a major block of shares in a Japanese company had become available to an outsider without the approval of the *keiretsu* shareholders. Because of that fact and Pickens' reputation for hostile takeovers, the Japanese press made much of the purchase, but Pickens claimed it was a "fairly straightforward" investment.⁶⁸ He encountered initial difficulty getting the company to register the stock in his name; Koito management claimed his filings were not complete, but could not convince the relevant Japanese authorities that this was so. In April, Pickens and his associates met with Takao Matsuura, the President of Koito, and put forth their request for three seats on the board of directors. The request came to a vote at the annual shareholders meeting June 29, 1989, and was turned down by a majority vote of the shareholders. At present, having increased his stake in the company to 26.4 percent,⁶⁹ Pickens is seeking four seats.

Pickens also demanded disclosure of information such as the salaries of the company's officers. Further, under article 293-6 of the Commercial Code,⁷⁰ on the shareholder's right to peruse books and records, he asked the Tokyo District Court to grant him permission to see Koito's final corporate income tax returns for the last two years. On June 22, 1989, the Court denied the request on the grounds that the final tax return is not included in the documents mentioned in the Code.⁷¹ In addition, on January 12, 1990, Pickens filed suit in Tokyo District Court against Koito's directors, hoping to gain access to the company's account books from April 1, 1979 to the present.⁷² The first hearing on the case was March 8, 1990, in Tokyo District Court; the second one was scheduled for May 10, 1990.⁷³

On April 10, 1990, Pickens formally requested that Japan's FTC determine whether or not the exclusive arrangements between Japanese automobile manufacturers and parts suppliers constitute a violation of Japanese antimonopoly law. The complaint stated that Toyota purchases auto parts inexpensively from Koito and that this restricts competition and hinders the entrance of outsiders

⁶⁸ How a Corporate Dealmaker Learned that Japan Doesn't Play by Texas Rules. *Washington Post*, June 4, 1989, p. B1.

⁶⁹ Reuters News Service, *Financial Report*, March 16, 1990; retrieved from the Lexis/Nexis database.

⁷⁰ Law no. 73, May 3, 1911, as last amended by Law no. 74, 1981. Article 293-6 states that anyone holding at least a tenth of the issued shares may demand to inspect the "books, records, and documents of the account." Such a request must be made in writing, and reasons must be stated.

⁷¹ Decision of the Tokyo District Court, June 22, 1989, *Hanrei jiho*, no. 1315, September 1, 1989, p. 3.

⁷² Pickens Asks Court For Access to Koito Accounts. *Reuters Business Report*, January 12, 1990, as retrieved from LEXIS/NEXIS database. See also: *New York Times*, March 12, 1990, p. D9.

⁷³ *Ibid.*

into the market.⁷⁴ This is the first request of its kind, contesting transactions in the *keiretsu* and cross-shareholding system as a violation of antimonopoly law.⁷⁵

PICKENS' CONTENTIONS

On the basis of newspaper accounts and his own article,⁷⁶ Pickens' contentions can be summarized as follows: 1) Request for seats on the board of directors as the largest single shareholder. Since the Toyota Motor Company, with holdings of 19 percent of Koito's shares has three seats, Pickens feels it proper for Boone Co., with 26.4 percent of the shares, to send representatives to the board. He has made critical statements about the refusal of Koito to honor his request, stating that Japan invests in the United States quite freely, but denies this right to non-Japanese. 2) Request for increased dividends. Pickens' request is based on the principle that the company should operate for the benefit of the shareholders, who are the owners of the company. His contention is further related to the general criticism that Japanese enterprises neglect the shareholder; 3) Request for disclosure of information. He raised the concern that the Toyota Motor Corporation, as a large shareholder may be getting special prices on the automobile parts it purchases from Koito. This could be ascertained from a review of the company financial records. 4) The Japanese enterprise system involves cross-shareholding among allied companies, or *keiretsu* companies. Pickens says this practice is creating a barrier against foreign investment and causing a disadvantage to shareholders of subcontracted enterprises as well. He points out that the most powerful impediments in Japan are not legal restrictions but those created by business custom and practices.

JAPANESE RESPONSE

Regarding Pickens' demand for representation on the board of directors, Professor Zen'ichi Shishido of Seikei University has argued that Pickens' allegation that the request for directorships is proper for the largest shareholder would not be well received in Japan, the United States, or in other countries where the stock corporation system is adopted, because Pickens does not have a majority of the right to vote, even though he is the largest shareholder of Koito. Boone Co. therefore is not entitled to claim seats on the board. The reason that Toyota, with only 19 percent of the shares, is allowed to have three directors in Koito is that Toyota is the most important customer, buying about half of Koito's products, and Koito management decided that acceptance of directors sent by Toyota would be beneficial to Koito's interests.⁷⁷

Pickens' has further contended that his representatives were kept off the board because they, and he, are not Japanese. The officials of Koito claim that nationality has nothing to do with the decision not to allow Pickens and his associates to be seated on the

⁷⁴ *New York Times*, April 16, 1990. p. D7.

⁷⁵ *Asahi Shinbun*, April 11, 1990. p. 11.

⁷⁶ T. Boone's Bone to Pick. *The International Economy*, Sept./Oct. 1989. p. 88-90.

⁷⁷ Shishido, Zen'ichi. Koito seisakusho jiken no kyokun [A Lesson From the Koito Manufacturing Case]. *Chuo Koron*, no. 1251, October 1989. p. 260-267.

board. The company views Pickens' investment as a hostile maneuver. Yoshiro Nagamura, the vice-president of Koito, stated that the company doubted Boone intended to be a long-term investor. Matsuura, the president, has stated that establishing trust may take as long as two years. Some analysts have believed the stock acquisition was a greenmail attempt, while others argued that Pickens is creating an issue to further a political career in Texas.⁷⁸

Pickens has also argued that dividends are too low. In comparison with the corporations of other countries, Japanese dividends are quite low in general, but Koito Manufacturing's dividend ratio is over 40 percent. It is thus not exceedingly low, in comparison with similar companies in other countries. Japanese practice is that the amount of the dividend is determined by the par value of the stock. Professor Shishido argues that even with lower dividend ratios, Japanese enterprises are not necessarily neglecting the interests of shareholders. Japanese investors tend to buy stocks to realize high capital gains. A large portion of profits is put in reserve for the purpose of promoting future development. This dividend distribution policy works favorably for the profits of management, employees, and individual shareholders.⁷⁹

Among Pickens' criticisms, one of the most crucial is directed against the Japanese enterprise system, in particular, the cross-shareholding and the *keiretsu* system. Since Pickens' criticism is directed against the system as a whole, Professor Shishido suggests, a resolution will not be simple to achieve. One can not deny, Shishido states, that cross-shareholding and *keiretsu* may be barriers against foreign investment, but the system is not necessarily unfair or irrational. There are two functions to cross-shareholding: 1) to form *keiretsu* or allied enterprises, and 2) to avoid any hostile takeovers, either domestic or foreign. As long as there is no cartel, the formation of an allied enterprise group to realize a common interest is a rational business strategy.⁸⁰

CONCLUSION

Since 1980, foreign investment in Japan has been considerably liberalized. Foreigners planning to invest must give prior notice to the Minister of Finance within three months of the proposed investment. This covers all investments, including those in existing companies, in the form of branch offices, wholly-owned subsidiaries, and joint ventures, and tender offers. The 1979 Law froze such transactions for 30 days, but other measures have modified this to apply either a 15-day waiting period or a same-day procedure. The notices are reviewed by the Ministry of Finance and other relevant ministries, as well as the FTC.

There are still some industries in which foreign investment is heavily regulated for reasons of public security or overriding economic interest: aircraft, space development, atomic energy, manufacture of narcotics and vaccines, agriculture, fishing and forestry, oil and gas, mining, and leather products. In addition, special laws

⁷⁸ *Japan Times Weekly Overseas Edition*, July 15, 1989, p. 11.

⁷⁹ Shishido, *Koito*, p. 264.

⁸⁰ Shishido, *Koito*, p. 266.

regulate the role of foreigners in other areas, such as broadcasting and utilities.

Although the legal restrictions have been relaxed, other, non-legal barriers to foreign investment remain effective, including the government's administrative guidance, cross-shareholding among allied companies, and the fact that only a small percentage of stocks are publicly traded.

In the well-known disputes between American investor T. Boone Pickens and the management of Koito, one aspect may soon be resolved, as his suit for access to company records will be considered by Tokyo District Court. His desire for four seats on the board of directors is not likely to be satisfied soon, as it will take time for the officers of the company to gain confidence in him and trust that his investment is not a greenmail attempt. His other contentions about the nature of the Japanese business environment point to subtle barriers to foreign participation and foreign or domestic hostile takeovers. To the extent that these barriers result from the natural dynamics of Japanese business culture, reflected in the development of *keiretsu* patterns, including cross-shareholding, they will not be easy to change.

FOREIGN PRESSURE AND THE LIBERALIZATION OF JAPAN'S FINANCIAL MARKETS

By Frances McCall Rosenbluth ¹

CONTENTS

	Page
Introduction	174
The Case Studies	175
Foreign Banks and the International Banking Facilities	175
The Exchange Rate Problem and the Yen-Dollar Committee	177
The Yen-Dollar Committee and the Euroyen Market	180
The Reemergence of the IBF	183
Conclusion	186

INTRODUCTION

Japan is in an historic process of deregulating its financial markets. That financial institutions and practices in Tokyo bear a growing resemblance to those of New York and London would seem to testify to strong international pressures. And yet, marked national differences remain. For as indiscriminating and relentless as external pressures may be, they take on policy significance only when they have affected the costs and benefits of important players within the domestic polity. Domestic structure is the key intervening variable that determines the pattern of policy choices in response to external stimuli. In examining why the Japanese state, or in this case, the Ministry of Finance (MOF), yielded to foreign pressure, in some instances but not in others, I conclude that Japan's financial policy making is guided by a domestic calculus based on the political resources of the affected groups.

The Japanese financial sector comprises several well organized interest groups that have successfully employed their political resources to influence financial policy in Japan. Deregulation is proceeding because a) changes in Japan's economic environment have rendered the initial regulatory structure no longer beneficial to these groups and b) the MOF has little choice but to be responsive to the needs of these politically powerful groups.

This is not to say that Japan is impervious to involuntary change; there are several avenues through which foreign desires press hard upon Japan. The first is at the summit, between Japanese and foreign political leaders. The ruling Liberal Democratic Party, and the Prime Minister in particular, zealously guard

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against at least the public appearance of botched foreign relations. And the United States being the single most important country to Japan's well being, ties with Washington are treated with special care.

A second and more direct route by which foreign governments impose change in Japan is by threatening retaliation. It is the conspicuous success of Japanese financial institutions abroad that makes them especially vulnerable to foreign demands for reciprocal treatment in Japan, a sort of reverse osmosis. A third type of external influence on Japan's financial system is the availability of foreign alternatives to domestic services. The more lenient regulations in the Euromarket have led to substantial relaxation of Japan's bond market rules and lending practices. Indeed, the Euromarket's competition for wholesale financial services has been far more instrumental in spurring the deregulation of large denomination deposits and loans in Japan than were American demands for change, however vituperative they may have been.

The barrage of foreign pressures notwithstanding, some aspects of Japan's financial system remain more or less intact. For even when the Japanese feel some concessions to be unavoidable, precisely what concessions those should be and which groups domestically will bear the costs are often matters of considerable discretion. The surviving configuration of change and continuity is a topological map, as it were, of the ever shifting landscape of power and interest in Japan's financial sector. Much as in domestic legislative change, the forging of new international accords forces the parties involved to match strength with strength, leaving behind a clearer delineation of what each is desirous and capable of preserving.

THE CASE STUDIES

In comparing two sharply contrasting outcomes pursuant to separate instances of external pressure, we find that foreign diplomatic urgings are effective only where market forces or a perceived threat of damaging retaliation have already altered the costs and benefits of domestic groups. Domestic practices and institutions may change significantly when political resistance is minimal; but the MOF cannot alone wage its battle for efficiency. As we shall see, the case of the Japan Offshore Market is an excellent example of how an idea, originally conceived to assuage foreign pique at financial market closure, has been denied full fruition until the domestic alignment of interests is favorable. Restraints on the Euroyen market, by contrast, seemed to yield more readily to foreign pressures. In fact, domestic interests had been moving towards a liberalized Euroyen market for some time, and foreign pressure merely speeded the timing. In both the Offshore and Euroyen markets, domestic factors set the parameters of change.

FOREIGN BANKS AND THE INTERNATIONAL BANKING FACILITIES

By 1976, after some two decades of operating in Japan in the postwar period, foreign banks collectively held only 0.99 percent of the deposit market and 3.37 percent of the loan market. The foreign banks' problem was not that they were discriminated against

by the Japanese regulators, but that, first of all, they lacked the network of branches that allowed them to tap low cost savings deposits. Since foreign banks had to "buy" their money on the open market, their costs were higher and were thus at a competitive disadvantage in providing services. Secondly, they lacked the long-standing relationships with corporations on which the Japanese commercial banks thrived.

Not directly addressing a point of contention with the United States, but nevertheless in the name of greater openness, the Japanese Diet passed in 1979 a new Foreign Exchange and Trade Control Law which moved Japan's system of capital controls from one that was "closed in principle" to one that is "free unless prohibited." Although this was a further step towards financial openness, foreign banks reacted with less than glee because their difficulty in carving out a healthy niche in the Japanese domestic market still persisted. Rather than abandon controls on movement of the yen, an American banker in Japan argued, the Ministry of Finance (MOF) should allow a Euroyen, or for that matter, a Eurodollar market to develop in Tokyo. By removing the withholding tax on interest paid to non-residents, lifting the minimum reserve requirements imposed on borrowings from abroad, and permitting free offshore lending, the Finance Ministry would be giving Tokyo its natural place as a center of international finance without forfeiting the efficacy of domestic monetary policy. In short, financial institutions located in Tokyo would act as intermediaries between non-resident depositors and non-resident borrowers in a deregulated environment. Though money would change hands in Tokyo, at least on the books, there need be no leakage into the domestic financial system.

The foreign banks' dream was not that the yen be catapulted into a world class currency, since much of their business derived from their expertise in marketing financial innovations often related to their own currencies. For American banks in particular, an offshore dollar market in Tokyo would support their comparative advantage.

The movement in America in the early 1980s towards the establishment of international banking facilities (IBF's) provoked at least some interest from Japan. In 1978, a group of young bureaucrats in MOF's International Finance Bureau, receiving cues from a particularly internationalist Vice Minister for International Affairs, Takashi Hosomi, quietly began studying an offshore market in Tokyo as a way to assuage foreign bankers' ire without having to dismantle the intricate web of domestic banking rules.

In April 1980, after having "parachuted" from his career in the MOF to become President of the Overseas Economic Cooperation Fund, Hosomi began publicly advocating the establishment of an offshore market in Tokyo. The Ministry of Finance set up a discussion group to examine the issue, comprising MOF section chiefs, department heads from Japanese banks and securities firms, and branch managers of foreign banks. Foreign bankers, in particular, met the initiative with enthusiasm, and Chairman of Bankers Trust, Alfred Brittain III, endorsed a Tokyo offshore center in a Japanese finance journal in November 1980.

Foreign interest notwithstanding, there was still considerable domestic resistance, from three different quarters, to the use of an offshore market as a buffer against foreign criticism. First, the Tax Bureau of the Ministry of Finance opposed the lifting of the 20 percent withholding tax on interest paid to non-resident depositors. The counterargument was that withholding taxes generate very little revenue income because most depositors go to the Singapore and Hong Kong offshore markets anyway. But tax officials remained inimical, arguing that domestic firms, perhaps through their overseas subsidiaries, would find some way around domestic tax requirements.

Secondly, the Bank of Japan (BOJ) objected on monetary policy grounds. The freedoms necessary for an offshore market to be viable would also pose a threat to the structure of domestic interest rates, warned BOJ officials. A third and more significant source of resistance to a Tokyo offshore market was the banking sector itself, and particularly the long-term credit banks and trust banks. These institutions, led by the powerful Industrial Bank of Japan, were fearful that an offshore market would further erode their diminishing advantage in long-term lending in Japan by bringing Euromarket practices—including the lack of a long-term/short-term distinction—closer to home. Many weaker banks were apprehensive about the effect of a free interest rate structure offshore upon their more comfortable fixed structure at home.

As the domestic debate continued, the center of gravity in international finance had already begun to shift away from deposit-taking and lending, for two reasons. First, the Third World debt crisis had all but destroyed bank interest in joining loan syndicates for sovereign borrowers. In August 1982, when Mexico announced that it could not pay loans due, new lending to debtor nations ground to a virtual halt. When banks later resumed their lending, they were guarded, favoring highly rated corporate borrowers over the desperate sovereigns. Secondly, corporations and banks alike responded to the increased interest rate and exchange rate volatility of the early 1980s with a preference for flexible financing arrangements, including floating interest rate instruments, various types of interest rate and exchange rate swaps, and short-term note issuance facilities. In other words, finance centered increasingly upon highly liquid securities, and less on the traditional bank deposits and loans. Regulatory environments such as those in the United States and Japan that demarcated banking from securities activities by a Glass-Steagall-type rule were destined to remain second-tier financial centers, unless they changed to match the more liberal European model of universal banking. American banks continued to book many of their transactions in Europe and became less enthusiastic toward the idea of another commercial banking center in Tokyo.

THE EXCHANGE RATE PROBLEM AND THE YEN-DOLLAR COMMITTEE

If foreign banks were no longer clamoring for a Japanese offshore market, there were more problems arriving from abroad. America had been running a chronic trade deficit with Japan since the mid 1960s, but through the 1970s, America's surplus on the

invisibles account resulted in a bilateral current account surplus for the United States. In 1982, the U.S. overall current account went from a surplus of \$6.4 billion for the previous year to a deficit of over \$8 billion, over one quarter of which was with Japan. The figures for merchandise trade were even worse, and protectionist sentiment was sweeping through Congress, fanned by the raw winds of the 1981-1982 recession in the United States. Moreover, the high consumer visibility of many of Japan's most successful export commodities increased American public awareness of the trade issue. It was ripe for politics. In early 1982, legislation to limit imports (mainly from Japan) was introduced in the Congress in several forms.

The Reagan Administration, concerned with avoiding domestic political fallout from what was touted to be the importation of unemployment and recession from Japan, but also eager to avert protectionist mudslinging across the Pacific, was in search of new solutions to the trade friction. Though not really an original idea, given the history of the post-Depression spate of competitive currency devaluations, some in Washington suggested a new focus on the yen-dollar exchange rate.

The idea of the yen's undervaluation relative to the dollar took on new political force in Washington when American industry seized upon it as a way to meet Japan's productivity challenge. In a statement before the House Ways and Means Trade Subcommittee on November 30, 1982, Caterpillar Tractor Chairman Lee L. Morgan called the undervalued Japanese yen "the single most important trade issue facing the United States . . . American companies are losing sales to Japanese firms not because of cost, quality or service, but because of the unearned price advantage due to the undervalued yen." Morgan suggested several possible actions: Japanese measures to encourage capital inflows and to stimulate foreign investment in yen instruments in Japan, attachment of an import surcharge on Japanese manufactured goods, and/or intervention in foreign exchange markets. "These are strong actions we are talking about," said Morgan, "but this very important yen/dollar problem requires strong medicine, and requires it now."

The strong medicine was not concocted as soon as Morgan would have liked, and he commissioned Stanford economist Ezra Solomon and Washington lawyer David Murchison to draft a report that would state his position in more convincing terms. Released in September 1983, the *Solomon-Murchison Report*, as it came to be known, reaffirmed that "United States manufacturing firms and workers are suffering substantial injury as a result of a significant misalignment of the Japanese yen and the dollar." Although they conceded that other currencies had also depreciated significantly against the dollar, thus hinting that some policy problems might have been on the American side, they chose to stress exclusively the *result* of colliding national policies, that being "a large autonomous net flow of capital into dollar assets, a significant portion of which is from Japan." The authors recommended that Japan, out of its own interest in preserving the free trade system, should take measures to remove all artificial curbs on the demand for yen, including interest rate controls on deposits, debentures and govern-

ment bonds, and restraints on Euroyen bond issues.² Rather than to restrict their capital outflows to the United States, the report argued, the Japanese should contribute to a stronger yen by making the yen a more attractive investment currency. The idea of a Tokyo IBF also appeared on the agenda, not as a means of helping foreign banks to make it in Japan, but as a device to advance the use of the yen as a store of value and medium of exchange.

In the Senate Banking Committee, meanwhile, Republican Senator Jake Garn introduced an amendment to the International Banking Act of 1978 that would explicitly authorize the Treasury Department "to consider reciprocity among other factors in acting on an application by a foreign bank to establish a Federal branch or agency, and for other purposes." (S. 2193, 98th Congress, 2d Session.) Although the Senate Committee eventually withdrew the bill, *Business Week* described it as "a bill that's packing a punch before it passes."³ For even the threat of such legislation was powerful ammunition in Treasury's arsenal for its negotiations with Japan.

The Japanese, of course, were unhappy about being held solely responsible for U.S.-Japan economic friction. Even the Solomon/Murchison report conceded that the recent weakness of the yen was due to high interest rates in the United States, for which the large U.S. Government budget deficit was primarily responsible. The Japanese government was unwavering in this view and resented what it perceived to be another instance of the American penchant for scapegoating.

The U.S. Government was equally staunch in believing that the yen was undervalued and that the closure of Japanese financial markets was at least partly to blame. The internationalization of Japan's financial markets and of the yen must be placed on the negotiating agenda, the Americans argued. Facing a Presidential election year in 1984, Reagan could not afford to leave the U.S. trade deficit and dissatisfaction of American banks unaddressed. President Reagan and Prime Minister Nakasone agreed to meet in Tokyo in the fall of 1984 for a discussion of the exchange rate and other financial market issues.

To lay the groundwork for a U.S.-Japan summit, Treasury Secretary Donald Regan and Finance Minister Noboru Takeshita met secretly in Honolulu in September 1983. Using the Solomon/Murchison report as a basis for discussion, the Americans requested Japanese cooperation in boosting the attractiveness of the yen as a means of correcting the bilateral trade imbalance. In addition to the concerns about the yen-dollar rate, the American government also added to their list the plight of foreign banks and securities companies in Japan.

Towards the end of October 1983, the Japanese Cabinet announced a "Comprehensive Economic Plan," obviously in anticipation of Reagan's visit. As measures to increase the international demand for yen, the Japanese government would 1) abolish the

² Murchison, David C., and Ezra Solomon. *The Misalignment of the United States Dollar and the Japanese Yen: The Problem and Its Solution*. Unnamed Publication, September 19, 1983. p. 1, 10, 16-17.

³ A Bill That's Packing a Punch Before It Passes. *Business Week*, May 14, 1984.

"real demand" principle in forward transactions in the foreign exchange market, to render the yen less risky for investors to hold (but which had not been enforced for some time); 2) establish a yen bankers acceptances market; and 3) reexamine the barriers to foreign direct investment in Japan, such as the oft cited exclusion of eleven "designated companies" from foreign equity purchasers. In addition, the government would study the problems of foreign financial institutions in the Japanese market.

When President Reagan arrived in Tokyo in early November 1983, Treasury Secretary Regan was with him. And while Reagan and Nakasone spoke mutually encouraging words, Secretary Regan and Minister Takeshita were hammering out a detailed list of measures, adding to those enumerated in the Comprehensive Plan, designed to bolster the attractiveness of yen-denominated investment instruments. Perhaps the most concrete result of Reagan's Japan trip was the establishment of a bilateral team of officials to continue working on the exchange rate issue. This "Joint Japan-U.S. Ad Hoc Group on Yen/Dollar Exchange Rate and Financial and Capital Market Issues" would meet six times between January and June 1984.

Although the Ministry of Finance had agreed at the outset to a number of liberalizing measures, the Japanese and American agendas were not identical, by any means. In a Diet statement in February 1984, Minister of Finance Noboru Takeshita averred that the dollar's excessive strength against a number of currencies, including the yen—not the overvaluation of the yen—was a major cause of economic disputes between Japan and the United States.⁴ The Japanese would press the United States to undertake efforts to pare down the U.S. Government budget deficit as part of the Yen-Dollar negotiations. Nonetheless, the Japanese knew they would have to take some sort of action to avert a rupture in economic ties with Washington.

The primary constraints on the Japanese bureaucrats were, as in the past, the MOF's and the BOJ's reluctance to forfeit some measure of control of the domestic money supply with the internationalization of the yen, and the political strength of a large number of weak Japanese financial institutions. Their reluctance to embrace change, apparently, was not easy for Secretary Regan to bear. In a speech before the *Keidanren* in March 1984, he steamed, "I'm about to run out of patience. . . . How much more patience do you want? My response is: action, action, action," (punctuating his words with a pounding fist), "that's what I want now. I'm through with patience."⁵

The Yen-Dollar Committee and the Euroyen Market

The U.S. negotiators in the binational Yen-Dollar Committee aimed primarily at increasing the demand for yen by making capital inflows to Japan more attractive as the market was liberalized.

⁴ Government Will Relax Restrictions on Financial Deals. *The Japan Times*, February 22, 1984.

⁵ Presentation by Secretary Donald Regan at the American Center, Tokyo, March 24, 1984. Cited in Frankel, Jeffrey. *The 1984 Campaign for Liberalization of Japanese Capital Markets*. Unpublished manuscript, August 1984. p. 21.

Japan had already been moving in that direction for some time, since corporations had foreign currency alternatives to domestic bank deposits. But there were still pockets of rigidity, particularly in small deposits, and in certain market segments.

Rather than take on the Japanese domestic system in a frontal assault, the U.S. Government decided on the indirect approach of urging the liberalization of the Euroyen market. Enlarging the pool of market-based yen investment options outside Japan's borders presumably would have some effect in increasing the value of the yen by increasing the foreign demand for yen-denominated financial assets. But beyond that it would increase the arbitrage opportunities between the international and domestic markets, and thus vitiate artificial restrictions on any financial instruments in Japan for which there were close substitutes overseas.

Though indirect, the implications of this tack were not lost on the Japanese. The Bank of Japan's concern, as in the case of the International Banking Facility (IBF), was that monetary policy would be more difficult to implement effectively in the event of arbitrage between the domestic and Euroyen markets, as long as there was not a large short-term government bond market in which to conduct open market operations. If only the Ministry of Finance would give up trying to suppress the costs of government debt through an artificial interest rate structure, said BOJ officials, the central bank could cope more readily with internationalization. Not so, said Ministry of Finance bureaucrats. Fears of runaway credit expansion are unfounded, they contended, since most yen return to Japan for settlement of transactions.

The Ministry of Finance had traditionally been wary of the expansion of yen transactions outside Japan's borders, because both the yen exchange rate and domestic interest rates would be increasingly out of domestic control. Since the first yen bond issued outside Japan in 1977 by the European Investment Bank, only a few Euroyen bonds were placed each year by sovereign or public institutions. The Ministry of Finance barred Japanese and foreign private corporations from the Euroyen market altogether. Meanwhile, pointing to high U.S. interest rates instead of low Japanese yields, the MOF continued to disagree with the U.S. Treasury as to the reason for the yen-dollar misalignment. Hence, the MOF questioned the usefulness of the Euroyen market in correcting the problem.

Japanese corporations, on the other hand, were the strongest domestic proponents of Euroyen market deregulation, since yen-denominated bond issuance in the Euromarket would both afford competitive financing terms and obviate the need for currency swaps or other devices used for hedging the foreign exchange risk entailed in foreign currency bonds. Moreover, once the yen had become accepted as a world-class investment currency, foreign importers and exporters would be more willing to denominate trade settlement transactions in yen, thus giving Japanese corporations an additional hedge against currency fluctuations.

Japanese securities firms also stood to gain from greater use of yen in the Euromarket, insofar as Japanese securities houses had a comparative advantage over their foreign counterparts in placing yen-denominated financial instruments.

The interests of even the city banks were more complicated than to warrant a policy of simple obstructionism. There were considerable profits to be made in securities transactions in the Euromarket, particularly as foreign corporations began to issue Euroyen bonds. Since the early 1980s, in fact, city banks had begun upgrading their international and securities sections into full divisions at the top level of bank management. But of course banks would fight to minimize the number of Japanese firms eligible to issue yen-based bonds in the Euromarket.

In May 1984, after five meetings since its establishment in November 1983, the Working Group of the Joint Japan-U.S. Ad Hoc Group on Yen/Dollar Exchange Rate, Financial and Capital Market Issues (hereafter Yen Dollar Committee) issued a report of their agreements. Among various categories of liberalization measures to be taken, the Euroyen market would be further liberalized. Already, effective April 1, 1984, restrictions on Japanese corporate access to the Euroyen bond market were relaxed to permit approximately 30 firms to issue straight, unsecured Euroyen bonds, and 100 firms to issue convertible Euroyen bonds. These firms accounted for over 70 percent of the straight bonds and 40 to 60 percent of convertible bonds issued in the domestic market.⁶

Under the new agreement, non-Japanese private corporations and foreign government bodies were authorized to issue bonds, on an unsecured basis, in the Euroyen market as of December 1, 1984. Qualification standards initially were to be those applied in the Samurai market, which allowed access to corporations with a rating of A or better *and* that met certain rather strict financial criteria.

A further relaxation was scheduled for April 1, 1985, granting eligibility to Japanese corporations with a credit rating of AA or better as well as a "reasonable portion of the universe of world corporations whose outstanding debt would be rated A." This raised the number of Japanese companies eligible to issue Euroyen bonds to approximately 145. Moreover, both residents and non-residents would be able, without limitation, to swap non-yen bond issues into yen using either forward exchange markets or currency swaps. Later, in January 1985, the MOF agreed to exempt from Japanese withholding tax all non-resident earnings from Euroyen bonds issued by residents. But in order to shield the collateral principal in the domestic bond market from imminent demise, the proceeds from Euroyen bond issuance were not to be repatriated to Japan until 180 days after issuance.

The Ministry of Finance did not give in to every American request. The Japanese government did not agree to institute a secondary Treasury Bill market, would not deregulate small denomination deposits for the time being, and would not allow Euroyen lending for maturities longer than one year.

In order to utilize pressure from abroad more selectively, the MOF had established a special Subcommittee on the Internationalization of the Tokyo Market, under the Foreign Exchange Advisory Council, to examine the matters under review by the Yen Dollar Committee. This body was headed by Chairman of the Bank of

⁶ Kaikin Mokuzen Ginko Shoken Tsubazerai. *Yomiuri Shimbun*, March 3, 1984; and, Gaiatsu, Kokusai ni Osare. *Mainichi Shimbun*, March 9, 1984.

Tokyo Yusuke Kashiwagi (formerly MOF Vice Minister for International Affairs), and included twelve other members from banks, securities firms, private corporations, and academe. Their recommendations issued on May 30, 1984, only partially overlapped with the conclusions of the Yen Dollar Committee.

The MOF's goal in invoking the Subcommittee's study was not to stall on domestic deregulation, but to take it beyond the scope of the Yen Dollar Committee's concern. For while yen internationalization might weaken control of domestic money supply, a competitive parallel market in Europe would aid the MOF in promoting efficiency and consolidation in the domestic financial system. "Foreign pressure" could be a convenient device for blunting a domestic backlash against the MOF. The Subcommittee's most significant additions were 1) a category entitled "Market Stability" which included the familiar recommendations to bolster the deposit insurance scheme and to strengthen disclosure rules for financial institutions; and 2) a resuscitation of the Tokyo Offshore Banking Market idea.⁷

The Reemergence of the IBF

The Subcommittee's endorsement of the Tokyo offshore market came unsolicited from the Americans this time. As long as foreign banks would be prevented from raising funds on the offshore market for use in domestic operations, it would be of little use to them. And to the extent that Article 65 (separating banking and securities activities) applied to International Banking Facility (IBF) activities, even Japanese banks would still conduct most of their international financial business overseas where they were free to engage in securities activities. But there was a new coalition of enthusiasts joining the bureaucrats in the International Finance Bureau: politicians and regional banks. Politicians were always looking for uncontroversial causes to sponsor, and smaller banks lacking foreign branches hoped to gain access to international finance without the expense of establishing foreign branches.

On December 29, 1984, a group of 53 Liberal Democratic Party (LDP) politicians formed a "Dietmen's League for the Promotion of an International Market" (*Kokusai Shijo Ikusei Giin Renmei*). The politicians selected from among themselves Yoshitake Sasaki and Seiichi Ohta to lead and coordinate the League. Both Sasaki and Ohta were respected for their grasp of economic policy matters. Sasaki was a former bureaucrat in the Economic Planning Agency, and Ohta had been a professor of economics, and both were from outlying districts where small banks are particularly strong.

Many of the politicians in the League were unclear as to exactly what an offshore market was, and some initially were allured by the presumed possibility of massive land fill and construction projects somewhere out in Tokyo Bay.⁸ Others perhaps were hoping to ride the popular notion of "internationalization" into flattering news coverage. But all were drawn to the idea of promot-

⁷ Takeuchi, Hiroshi. Internationalization of Financial Market in Japan. *Asian Wall Street Journal*, September 7, 1986.

⁸ Bureaucrats in the International Finance Bureau delight in recounting the politicians' misinterpretation of "offshore."

ing Tokyo as a center of international finance, and particularly a center that would benefit even the local banks back in the district. The League convened monthly, reviewing materials prepared by the International Finance Bureau and by various financial institutions that were asked to prepare statements.

The League grew in popularity within the LDP, and eventually nearly doubled in size. But not all was smooth sailing for the Dietmen. In a survey of 108 financial institutions conducted in March 1985 by the Japan Center for International Finance, less than 43 percent of the respondents declared unqualified interest in an offshore market; 48.2 percent favored its establishment only under certain conditions. The deregulation of the Euromarket had already swept aside the concern of the long-term credit banks and trust banks that their monopoly in long-term banking would be further eroded. Now the dispute was between banks and securities firms over Article 65.

The securities industry wanted securities transactions included in the offshore market; that is to say, they wanted interest payments to nonresidents from samurai bonds and other foreign securities exempted from withholding tax and trading exempted from stamp tax and transactions tax. Their argument was two-fold: 1) In an age of securitization in international finance, to limit Japan's offshore market to a commercial banking center would ignore the global trend and cut Japanese institutions (read securities firms) out of the profits to be made; 2) granting tax relief to commercial banking activities without doing the same for securities firms was unfair.

Banks did not object to securitization per se, but cared a great deal about who would be able to benefit from it. Their greatest fear was that securities firms would use an offshore securities market to underwrite and trade commercial paper, thereby seizing much of the banks' short-term loan business. Banks would agree to an offshore securities market only if they could join in this business. To this counterproposal, the securities firms objected vociferously. The securities industry would rather not get involved in the offshore market at all than allow such an egregious encroachment into their territory.

This turf battle continued to roil for some time, surfacing only occasionally into public news. On September 2, 1985, a preliminary report of the Advisory Council's Subcommittee stated it was considering ways of preventing tax leakage through the trading of offshore securities. But on the following day the same committee stated that there would be no participation of securities firms in the offshore market.⁹ The Dietmen's League, nevertheless still interested in the possibility of including securities activities, dispatched a group of their members on a fact finding mission to New York, Washington, and London from September 8 through 15.

While the politicians were away, the author of the original International Banking Facility (IBF) idea, Takashi Hosomi, issued his "Offshore Market, Plan II" which included offshore securities ac-

⁹ Fuji Bank Research Division. *Kento Dankai ni Haitta Tokyo Offshore Shijo Sosetsu*. *Fuji Times*, June 1985. p. 9-10; and, Isaka, Takehiko. Ginki, Shoken no Kaigai Shinshutsu to Offshore Shijo Sosetsu. *Kinyu Janaru*, March 1986. p. 35-38.

tivities. Because the traditional deposit and loan business is a declining part of international finance, Hosomi asserted, Tokyo would have to provide securities services to be a world class market. On September 21, the *Nikkei Shimbun* editorial staff weighed in with Hosomi, arguing in an editorial that an international financial market without securities transactions did not make sense in this day and age.

The Advisory Council's Subcommittee, however, stayed with its earlier conclusion in its final recommendation to the MOF on September 18, 1985. Beset by irreconcilable differences between the banks and securities firms within its ranks, it called for the minimalist solution of allowing only commercial banking operations offshore.

The debate was still not over. As the MOF proceeded to package the offshore market in legal text for passage through the Diet, both the banking and securities industry continued to press their interests. It was now the banking community that sought permission to engage in securities activities in the offshore market, and securities firms that fought to protect Article 65 even at the cost of blocking themselves out of the IBF. The securities industry wanted to ensure that the overseas securities subsidiaries of Japanese banks did not gain entry into the underwriting business in the offshore market. At one point in December, a leak to the newspapers seemed to indicate that a compromise had been reached, allowing limited tax-free investment into samurai bonds from IBF accounts. But securities firms ultimately rejected this step on the grounds that banks would attempt to use it as a foothold into the securities business.

The LDP accepted the earlier compromise for a commercial banking center, with the single addition that small financial institutions also be allowed to participate. This overruled the MOF's concern that small banks were not prepared to launch into international lending. Necessary amendments to the Foreign Exchange and Trade Control Law were deliberated on the floor of the Diet and passed in May 1986, with the only reservations coming from the Japan Socialist Party (JSP) finance expert, Masao Hori, who asked how the Tokyo IBF was ever going to compete with other offshore centers unless there were more tax and other incentives. Toyoo Gyohten, Director General of MOF's International Finance Bureau, answered, "We will start with something small, but will enlarge the scope of the market as circumstances permit." They all knew what he meant: that if and when the Article 65 barrier between banking and securities activities was lowered or reinterpreted for the Japanese market, the revision would apply to the offshore market as well. Until the banking and securities sectors could agree on a compromise, however, the offshore market would remain a strictly commercial banking facility.¹⁰

By the time the Japan Offshore Market was instituted in December 1986, it was a far cry either from the original hope of foreign banks for an alternative source of funds for their domestic operations, or from the subsequent ambitions of the U.S. Government

¹⁰ Japan. Diet. Lower House. Finance Committee Proceedings, May 16, 1986.

for dramatic internationalization of the yen. Foreign bankers expressed their disappointment with the restrictions remaining on Tokyo IBF transactions, and four of them, Deutsche Bank, Credit Suisse, Security Pacific, and Hong Kong Shanghai, declined to set up IBF accounts. John Loughran, Director of Morgan Guaranty's North Asia operations, had testified before the Advisory Council's Subcommittee in May 1985 that, "[T]heoretically, it is no longer valid for the Japanese regulatory authorities to engage in an intermediate step towards full liberalization by establishing in Japan an IBF structure."¹¹ But as Loughran was aware, the MOF was bound more by domestic constraints than by theory.

By the end of January 1987, the size of the Japan Offshore Market stood at \$115 billion in assets, above the original estimates of the market participants. This figure compares respectably with the New York IBF at \$260 billion, Singapore at \$140 billion, and Hong Kong at \$130 billion, at the end of 1985. But its relatively large size belies the Japan Offshore Market's importance, for a large part of the offshore activity consists of fund movements between parent banks' offshore accounts in the market itself and their overseas branches, as well as between banks operating in various offshore markets around the world. As long as the holding and issuance of securities are prohibited in the Japan Offshore Market, the Tokyo IBF will be no substitute for the Euromarket.

CONCLUSION

Despite the Ministry of Finance's years of practice in dealing with foreign pressure of various sorts, its job has not become any easier. Nor would it appear that the United States has become more skilled in wielding its arsenal of sticks and carrots. For, in fact, it is Japan's domestic circumstances that make the MOF willing to change some things, but tenaciously resistant to tampering with other matters that appear on foreign agendas.

That the U.S. Government's 1983-1984 diplomatic onslaught left much unchanged in Japan's financial system was not simply because the MOF was able to play off various inconsistencies in the long American wish list. Potentially contradictory requests, such as increasing the value of the yen and removing capital controls, did afford the MOF an added measure of maneuverability, at least in the realm of rhetoric. More fundamentally, the pockets of institutional survival reflect the domestic powers to which the MOF itself is accountable.

Though not unscathed, the walls that have divided various types of financial institutions since World War II still stand, because of the tenacity of entrenched interests and the vigilant monitoring from the MOF's watchtower. City banks, for example, will be barred from making long-term loans in the Euroyen market until the long-term credit banks and trust banks receive suitable compensation, such as expanded securities powers. Foreign bank entry into the trust banking business probably set back the timetable for a bargain since that episode raised the trust banks' "price" of an

¹¹ Loughran, John F. The IBFs Experience in the U.S.: Relevance for Japan. Presented before the Special Subcommittee on the Internationalization of the Tokyo Market. May 14, 1985. p. 15-16.

additional compromise. It is the political power of these various groups rather than economic rationale that protects them, but the MOF is capable of forging and enforcing compromises among them as circumstances, such as a changed pattern of profitmaking opportunities, require.

The MOF has also managed to fend off foreign demands for a short-term government bills market. For two decades the MOF has benefitted from the predictability and low cost of placing its bonds with the Government Bond Syndicate. Although the price of government bonds has come increasingly to follow the dictates of supply and demand, the predictability of placing medium- and long-term bonds still makes the Finance Bureau officials' lives somewhat easier than they would be otherwise. The strongest resistance to a full-fledged, short-term government bond market, however, comes from the banks that realize that Treasury Bills would make inroads into their deposit bases.

Third, the entire array of retail financial services remains virtually untouched by the wave of financial deregulation. Given the large barriers consumers of financial services face in gathering information about their best interests and then in organizing to register politically effective demands for change, financial instruments in small denominations will be the last to bear market yields. As long as small depositors and borrowers have few good substitutes for traditional bank accounts and loans, financial institutions will not be forced to compete more fervidly for their customers.

While the MOF would prefer to rid the Japanese financial system of the many small, weak banks that could not survive without heavy regulatory protection, the political influence of the small-bank sector dictates otherwise. As long as these small banks retain the political patronage of the LDP, the MOF will be constrained from removing the low ceiling on small denomination deposits and consumers will continue to subsidize their inefficient operations.

JAPAN'S FINANCIAL STAKE IN THE UNITED STATES: HOW STABLE IS IT?

By James K. Jackson ¹

CONTENTS

	Page
Summary	188
Recent Developments	189
Why Japanese Investment Increased	191
Nineteenth Century Experiences.....	193
Foreign Investment-Related Financial Crises.....	193
Japanese Investment.....	195
Recent Developments	195
Portfolio Investment.....	197
Treasury Securities.....	197
Corporate Stocks and Bonds.....	199
Investment Activity.....	200
Effects of a Japanese Withdrawal	203
Concluding Observations	206
Appendix A. Net Foreign Purchases of U.S. Securities.....	208

SUMMARY

Japan has become a major investor in the United States. By most measures, Japan is now the largest foreign holder of Federal debt securities, and it is the second largest investor in U.S. businesses and real estate. Japanese funds have bridged the gap between the amount of credit demanded and the domestic supply of funds, likely keeping U.S. interest rates below the level they would have reached without the infusion of foreign capital. Some analysts and policymakers are concerned over the sharp rise in foreign holdings of Federal and corporate debt securities. They fear that a co-ordinated withdrawal from U.S. financial markets by foreign investors would cause a financial crisis in the United States.

A number of factors are driving Japanese investments in U.S. assets. Many economists attribute Japan's investments in U.S. Treasury securities and corporate bonds and stocks to comparatively high real interest rates in the United States which are associated with the Federal Government's economic policies. Also, financial market liberalization in Japan, combined with Japan's high personal savings rate, have provided impetus to Japan's purchases of U.S. assets. Japanese investments in U.S. businesses during the 1980s probably reflected a number of factors, including the favor-

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able investment climate in the United States and fear of U.S. protectionism.

A review of U.S. economic history in the nineteenth century, when the United States also imported large amounts of foreign capital, indicates that there were three U.S. economic recessions associated with foreign investment. Many economists argue, however, that conditions in the U.S. and world economies are sharply different now from those that existed in the last century, and that similar foreign investment-related recessions are unlikely. Under the present conditions, any major investor who attempted to abruptly withdraw very large amounts of funds from the U.S. financial markets would probably suffer financial losses on a par with those inflicted on the U.S. markets. Most Japanese financial and political leaders scoff at the suggestion that Japan would attempt to punish the United States through a coordinated financial withdrawal.

What is more likely, however, is that economic or financial policies made in Japan could inadvertently spark a crisis in the international markets that would quickly embroil the United States. Financial markets around the world have become highly interrelated. These linkages serve as conduits through which financial and economic events, including the effects of economic policies, are transmitted across national borders. The linkages also mean that Japanese policymakers have lost some of their ability to control their own economy, and that the decisions they make will have to be considered in the context of international economic and financial developments. For the United States, the linkages mean that, at times, U.S. policymakers will have to sacrifice some economic goals in order to attract the needed foreign capital.

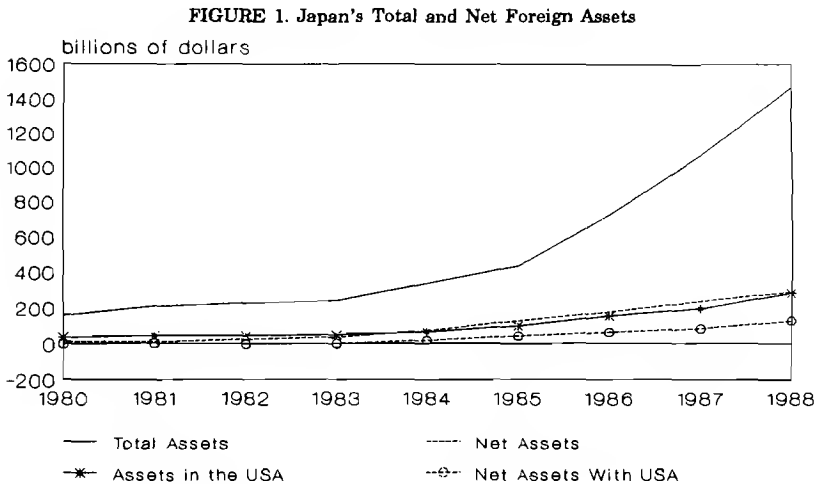
Many believe that concerns over the potential for a financial crisis arising from Japanese and other foreign investment in the United States are misplaced. Some analysts even argue that Japan's investments in the United States may have tied Japanese interests more closely to the fortunes of the U.S. economy and increase Japan's stake in a stable U.S. economy. Investments in financial assets, however, are highly liquid. This liquidity is one of the attractions of this type of asset, but it also means that purchases and sales of these assets respond abruptly to changes in interest rates or in investors' expectations. While a financial withdrawal by foreign investors could destabilize the economy over the short run, a more likely prospect is that Japanese and other foreign investors would merely reduce the amounts of new securities they buy. Under such circumstances, the Nation's credit demand-supply imbalance would lead the U.S. markets to offer returns higher than comparable returns abroad in order to attract the necessary amount of foreign capital.

RECENT DEVELOPMENTS

Japan has made a meteoric rise to the position of the world's largest net creditor.² From 1980 to 1988, Japan's total foreign

² For additional information, see: U.S. Library of Congress. Congressional Research Service. *Japanese Investment in the United States*. Report no. 90-13 E, by James K. Jackson. Washington, 1990. 36 p.

assets swelled from \$160 billion to \$1,468 billion, as indicated in figure 1. Japan's investments in the United States have experienced a similar explosion in growth: during the 1980-1988 period, Japan's investments in the United States increased more than eightfold, from \$35 billion to \$285 billion.³ Japan has also replaced the United States as the largest global net creditor. As the United States experienced an erosion in its net international investment position (net assets abroad less net foreign assets in the United States), from a peak of \$141 billion in 1981 to negative \$532 billion in 1988, Japan's net international investment position increased from \$11 billion in 1981 to \$292 billion in 1988. Nearly half of Japan's net asset position is with the United States. Some analysts argue, however, that U.S. direct investments abroad are undervalued in international accounts, because the accounts do not properly adjust the values of fixed assets for changes in the prices of the assets.⁴



Source: The Bank of Japan.

Some observers have expressed concern over the rise in Japan's financial presence in the United States. They contend that Japan's investments give the Japanese crucial leverage over the U.S. economy, and that the Japanese could seriously disrupt the economy if they started withdrawing their investments because of either an economic crisis or as part of a coordinated political action.⁵ Such a

³ U.S. Department of Commerce. Bureau of Economic Analysis. *Survey of Current Business*, June 1989. The International Investment Position of the U.S. in 1988, by Russell B. Scholl, p. 42.

⁴ Some estimates indicate that U.S. direct investment abroad may be undervalued in the international investment accounts by \$200 to \$400 billion. U.S. Library of Congress. Congressional Research Service. *American Direct Investments Abroad: How Much Are They Worth?* Report no. 88-507 E, by James K. Jackson. Washington, 1988. 10 p.

⁵ McCartney, Robert J. Nightmare on Wall Street: What if the Tokyo Market Crashes? *The Washington Post*, January 28, 1990, p. H1; and, Lowenstein, Roger. Japan Market Woes Raise Fears of Pullback in the U.S. *The Wall Street Journal*, January 19, 1990, p. C1.

crisis, some argue, could be sparked by a loss of confidence among the Japanese, either in the U.S. dollar or the U.S. economy, that would cause them to pull out of their American investments. In the present environment, in which demands on U.S. capital markets are outstripping domestic supplies, substantial foreign capital inflows are felt to be necessary to meet the demand at the present level of interest rates. Capital from Japan, in particular, has served to bridge the gap between demand and domestic supplies of capital. In recent years, Japanese and other foreign investors have been big buyers of U.S. Treasury securities, at times purchasing as much as 40 percent of the notes and bonds sold at Government auctions.⁶ Some public opinion polls indicate, however, that Americans fear that foreign investors might pull their money out of the United States at any time, and that such an action could lead to a financial crisis.⁷

Nicholas Brady, the head of the Presidential task force that studied the October 19, 1987, stock market decline and currently Secretary of Treasury, attributed the stock market decline to Japanese sales of U.S. bonds. He concluded that the record plunge was triggered by Japanese investors' heavy selling of U.S. Government bonds on October 14, 1987, in a reaction to the announcement of America's poor August trade performance.⁸ Other analysts, however, contend that Japanese financial regulators helped stem the market's slide by pressuring Japanese securities houses to reenter the market.⁹

WHY JAPANESE INVESTMENT INCREASED

A number of factors are driving Japanese investments in U.S. assets. Economists argue that the surge in Japanese portfolio investments—U.S. Treasury securities, and corporate stocks and bonds—resulted from the comparatively high real interest rates in the United States which are associated with the Federal Government's economic policies. As domestic savings fell below domestic investment requirements, interest rates increased in response to investment demands. Foreign capital, attracted by the high real interest rates, responded quickly to fill the U.S. savings shortfall. As figure 2 shows, U.S. real interest rates¹⁰ (nominal interest rates less changes in the rate of inflation) were appreciably above those in Japan between 1982 and 1987. Financial market liberalization in Japan spurred Japanese purchases and the net accumulation of U.S. Treasury securities after 1985,¹¹ which may have pushed U.S.

⁶ Mitchell, Constance, and Michael R. Sesit. Foreign Buyers Could Pull Back on Treasuries. *The Wall Street Journal*, January 22, 1990, p. C1.

⁷ Thomas, Rosita. *American Public Opinion Towards Foreign Investment*. In U.S. Library of Congress. Congressional Research Service. *Foreign Direct Investment: Effects on The United States*. Report No. 89-504 E, coordinated by James K. Jackson. Washington, 1989. p. 180-182.

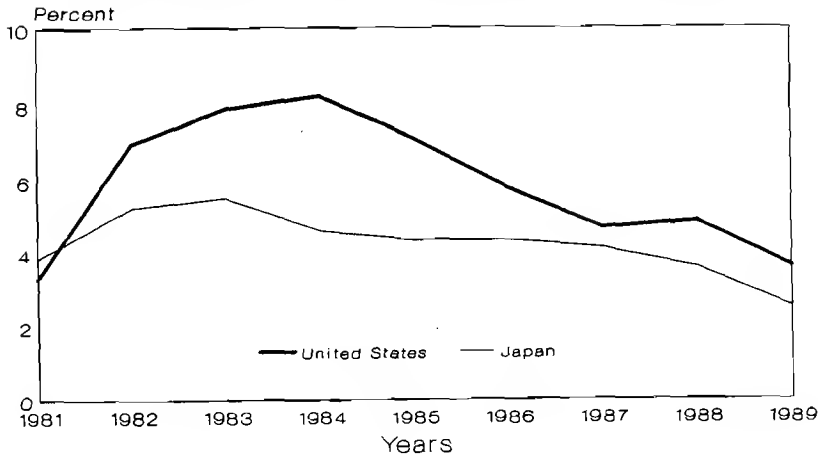
⁸ Ricks, Thomas E. Task Force's Brady Says Japanese Sales Of U.S. Bonds Touched Off Oct. 19 Crash. *The Wall Street Journal*, April 22, 1988, p. 18.

⁹ Murphy, R. Taggart. Power Without Purpose: The Crisis of Japan's Global Financial Dominance. *Harvard Business Review*, March-April, 1989, p. 73-74.

¹⁰ Measures of interest rates for this analysis were obtained from *International Financial Statistics*, published by the International Monetary Fund. For Japan, the rate used is that for the Government bond yield; for the United States, the rate is the long-term Government bond yield.

¹¹ For additional information, see: U.S. Library of Congress. Congressional Research Service. *Japan's Financial Liberalization: Effects on the United States*. Report No. 89-102E, by James K. Jackson. Washington, 1989. 40 p.

FIGURE 2. Real Interest Rates in the United States and Japan, 1981-1989



Source: International Monetary Fund.

and Japanese interest rates closer together. Japanese direct investment in U.S. businesses and real estate, however, probably reflects the favorable investment climate in the United States, fear of U.S. protectionism,¹² lower raw material costs,¹³ a lower cost of capital,¹⁴ and the appreciation of the yen against the dollar since 1985, which has cut the cost of investing in the United States in half for Japanese investors.

Analysts also contend that Japan's high personal savings rate, combined with financial market liberalization measures fostered by Japan's Finance Ministry, played an important role in Japan's purchases of U.S. assets. Some analysts argue that Japan's financial market liberalization occurred just as Japan tightened its fiscal policy to reduce its government budget deficits and the United States started to run large Federal Government budget deficits. This combination of policies proved to be highly potent: Japan began generating enormous trade surpluses in response to the fiscal shifts. With corporate profits soaring during a period when both corporate investment and government expenditures were declining, a capital excess was created that was invested abroad, aided by the liberalization of controls on capital outflows.

¹² U.S. Library of Congress. Congressional Research Service. *U.S. Trade Restraints: Effects on Foreign Investment*. Report No. 89-447 E, by James K. Jackson. Washington, 1989. 21 p.

¹³ Mann, Catherine L. Determinants of Japanese Direct Investment in U.S. Manufacturing Industries. *International Finance Discussion Papers*, September 1989. Washington, Board of Governors of the Federal Reserve System, 1989. (Paper no. 362)

¹⁴ McCauley, Robert N., and Steven A. Zimmer. Explaining International Differences in the Cost of Capital. *Federal Reserve Bank of New York Quarterly Review*, Summer 1989.

NINETEENTH CENTURY EXPERIENCES

Some analysts have attempted to assess the impact of foreign capital withdrawals on the U.S. economy by comparing the present circumstances with American experiences in the nineteenth century, when the Nation also imported large amounts of foreign funds.¹⁵ Analysts generally agree that the inflow of investment in the nineteenth century contributed to the growth of U.S. capital formation, especially during periods of rapid economic growth. These analysts also contend that foreign investment made it possible for the United States to finance periods of rapid expansion in the capital stock that would have been impossible with domestic financing alone.¹⁶

During the nineteenth century, the United States evolved from being a relatively undeveloped economy with immature financial markets to being a major economic power. Foreign investment aided the economy during periods of rapid growth, but was relatively less important as the economy matured. Most of the foreign investment flowed into capital development projects such as railroad and canal construction, which aided westward expansion and the development of heavy industries. Over most of the century, the United States was linked by a system of fixed exchange rates with European countries. Consequently, events in Europe or America occasionally caused foreign investors to withdraw funds from the United States, exacerbating and, at times, initiating economic disturbances. These events, however, contrast sharply with foreign capital inflows in the twentieth century, especially during the 1980s, because of the well-developed U.S. financial markets, the liquidity of international capital, and the maturation of the U.S. economy.

FOREIGN INVESTMENT-RELATED FINANCIAL CRISES

A review of U.S. economic history indicates that, of the thirteen U.S. economic recessions in the nineteenth century, at least six were associated with wars, and five with foreign economic or political events. Three economic disruptions were associated with foreign investment: the fact that the First Bank of the United States was not rechartered in 1811, the Banking Panic of 1837, and the Credit Panic of 1873.

Some analysts argue that Congress' refusal to recharter the First U.S. Bank¹⁷ illustrates the role of foreign capital in the beginning stages of the U.S. economy and the prevalent domestic resentment of foreign influence in the economy. The Bank had been unpopular

¹⁵ For additional information, see: U.S. Library of Congress. Congressional Research Service. *Foreign Ownership of U.S. Assets: Past, Present, and Prospects*. Report No. 89-458 E, by James K. Jackson and William D. Jackson. Washington, 1989.

¹⁶ Davis, Lance E., et al. *American Economic Growth: An Economist's History of the United States*. New York, Harper & Row, 1972. p. 315.

¹⁷ The First Bank of the United States was federally chartered in 1791 as a privately owned, publicly chartered institution, but was not intended to be a central bank. It did not have discretionary control over changes in the quantity of money and was denied official authority to regulate other banks. The main function of the Bank was to issue a unique national currency to facilitate the payments and receipts of the Federal Government. Dam, Kenneth W. *The Rules of the Game*. Chicago, University of Chicago Press, 1982. p. 5-6; and, U.S. Library of Congress. Congressional Research Service. *Banking Acts: Major Federal Legislation Since the American Revolution*. Report No. 86-4 E, by William Jackson. Washington, 1986. p.3-4.

from its inception, in part because of questions concerning its constitutionality. By 1811, the Bank's standing had further declined because large amounts of its stock were owned by foreigners. Some estimates indicate that foreigners owned 18,000 of the Bank's 25,000 shares. Opponents of the Bank and of foreign investors argued that foreign ownership amounted to a "malignant influence" over the operations of the Bank.¹⁸

A Second Bank of the United States was federally chartered in 1816. It expanded its operations to include cooperation with European security houses. The Bank's Federal charter was not renewed in 1836, an action which strained the resources of the banking system and contributed to the second financial crisis that involved foreign investment. Some economists believe that withdrawals of foreign capital from the U.S. economy during this period contributed to the Banking Panic of 1837. Events abroad, particularly in Great Britain, contributed to the severity of the banking crisis by drawing gold from the economy, spurring a further decline in available U.S. credit.

The third foreign investment-related financial crisis occurred in 1873. Following the Civil War, the Federal Government found itself deeply in debt. Between 1861 and 1868, for instance, the United States borrowed an estimated \$1.5 billion from abroad to finance trade deficits and reconstruction efforts.¹⁹ Increased imports after the Civil War, combined with a loss of exports, particularly of cotton, made the United States a net importer. Some economists argue that growing unwillingness among foreign bankers to accept Federal Government bonds to settle trade accounts initiated a recession that began in 1873.

The preceding three events, although apparently quite dissimilar, share a number of common elements. In each case, foreign capital combined with domestic and foreign economic events to accentuate the importance of foreign funds in the economy and to aggravate economic disturbances. Also, a system of fixed exchange rates and a monetary system based on precious metals linked the United States and foreign economies. These linkages allowed foreigners to trade their financial investments for precious metals at set prices and then to repatriate their funds without being concerned that exchange rate losses would dilute the value of their investments.

During most of the nineteenth century, the Nation's monetary policy was not conducted by a central bank. Instead, Congress established a monetary and banking system based on links to gold and silver, and included a number of operational conditions which were expected to make the system essentially self-regulating. Most importantly, the Federal Government defined the unit of account, or money, in terms of weights of precious metals: gold and silver. The Government also agreed to convert gold into coined money at the established rate and to accept the coined money as legal tender in all transactions.

¹⁸ Dewey, Davis Rich. *Financial History of the United States*. New York, Longmans, Green and Co., 1934. p. 127.

¹⁹ North, Douglass C. *The Economic Growth of the United States: 1790-1860*. Englewood Cliffs, Prentice-Hall, 1961. p. 371.

The Federal Government believed that this structure would establish a specified relationship between the supply of money and the quantity of gold and silver held in its reserves. Prices in the economy were sensitive to changes in the quantities of these metals, which were allowed to flow freely into or out of the economy in response to demand. These conditions tied the domestic money supply to the quantity of gold and silver held in reserves and, in turn, tied the U.S. and foreign economies through a system of exchange rates linked to gold and silver.²⁰

Linkages in the U.S. economy between coined money and precious metals were effective in connecting the American, British, and other gold-based economies. The major force in international relations was the Bank of England, which essentially functioned as the world's banker. As such, the amounts of credit extended by the Bank and the interest rates it charged set the pattern for other countries and determined the flows of gold and silver between countries.²¹ Some analysts argue that these discretionary policy actions initiated by the Bank of England were more important in determining the actual flows of capital and in affecting economic adjustments than were the self-regulating attributes generally ascribed to the gold standard.²²

JAPANESE INVESTMENT

Conditions in the economies of the United States and other countries are sharply different from those that existed in the nineteenth century. The U.S. financial system, in particular, with its strong central bank, is different in structure and in the economic policy tools that it possesses. Also, the United States and other countries have long abandoned policies which link their economies to precious metals, and the world trading system has effectively rejected the fixed exchange rate regime. At the very least, these changes mean that foreigners who attempt to abruptly withdraw their capital from the U.S. economy would not be protected, in the way nineteenth century investors were, from experiencing potentially large declines in the value of their assets. Indeed, in the present environment, even the rumor that foreign investors might decrease their investments or change their investment preferences would probably send interest rates higher and spur a drop in the exchange value of the dollar.

RECENT DEVELOPMENTS

From 1980 to 1988, Japanese investments in the United States increased more than eight-fold, from \$35 billion to \$285 billion as indicated in figure 3.²³ Japanese data indicate that Japan's direct

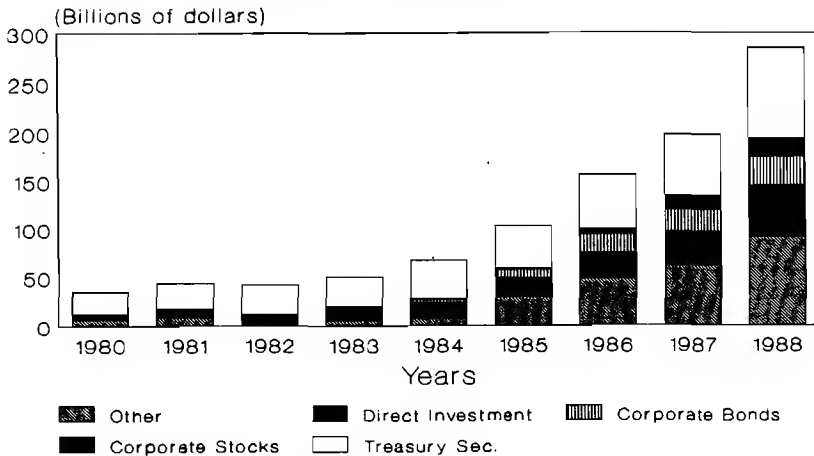
²⁰ Timberlake, Richard H., Jr. *The Origins of Central Banking in the United States*. Cambridge, Harvard University Press, 1978. p. 1-3.

²¹ Dam, *The Rules of the Game*, p. 15-17.

²² Ibid., p. 19-20; and Kroos, Herman E., and Martin R. Blyn. *A History of Financial Intermediaries*. New York, Random House, 1971. p. 72.

²³ U.S. Department of Commerce, Bureau of Economic Analysis. *Survey of Current Business*, June 1989. The International Investment Position of the United States in 1988, by Russell B. Scholl, p. 42.

FIGURE 3. Japanese Investment Position
in the United States, 1980-1988



Source: U.S. Department of Commerce.

investments²⁴ in the United States account for about 40 percent of Japan's foreign direct investment position, more than twice the amount Japan has invested in all other developed countries combined.²⁵ By far the largest share of Japan's investment position is in U.S. Treasury securities, as indicated by figure 3. Although the Treasury Department does not publish complete data on the foreign holdings of Treasury securities by country, some analysts estimate that Japanese investors own about \$90 billion in Treasury securities. This extensive market activity has, at times, led the U.S. Treasury to adjust its securities auctions in order to accommodate Japanese investment interests. Also, the risk of a Japanese investment pullout has reinforced some U.S. authorities' reluctance to let the dollar fall too far or too fast.²⁶ These authorities are concerned that a rapid decline in the value of the dollar might shake the confidence of Japanese investors in purchasing U.S. securities.

Investments in U.S. corporate stocks and bonds—about 17 percent of Japan's total investment position in the United States—also expanded abruptly: from \$3 billion in 1984, Japanese investments in U.S. corporate bonds rose to \$30 billion in 1988; Japanese investments in U.S. corporate stocks rose from \$1 billion to \$19 billion over the same period. The rest of Japan's investment position, la-

²⁴ Direct investment is defined as the ownership, acquisition, or establishment, directly or indirectly, by a foreign person—individual, association, corporation, government, etc.—of 10 percent or more of the voting securities or assets of a foreign enterprise.

²⁵ Doherty, Eileen M. Japan's Foreign Direct Investment in Developing Countries. *JEI Report*, August 4, 1989. Washington, Japan Economic Institute, 1989. p. 3.

²⁶ Bergsten, C. Fred. Economic Imbalances and World Politics. *Foreign Affairs*, Spring 1987. p. 783, 785.

beled as "other," consists of a variety of Japanese financial assets deposited with American banks.

PORTFOLIO INVESTMENT

Japan's main securities investors are life insurance companies, banks, and other major financial institutions.²⁷ Acquisitions of foreign securities by these institutions account for about 60 percent of Japan's total net purchases. Japanese banks held \$95 billion in overseas securities at the end of 1988, but the banks operate under restrictions that limit their overall net exposure in foreign currencies. These restrictions make interest rate spreads and the shape of yield curves key determinants of Japanese investors' decisions to purchase foreign securities. Attempts by Japan's life insurance companies and trust banks to gain the higher yields associated with foreign bonds spurred these institutions to purchase foreign bonds. In 1989, Japanese domestic bonds were so unattractive to the insurers in relative terms that they purchased increased amounts of foreign securities, which, by the end of the year, amounted to more in the portfolios of Japanese life insurers than did Japanese domestic government and corporate bonds.²⁸

The rapid rise in interest rates in Japan and West Germany at the beginning of 1990, however, is changing the buying patterns of foreign investors. These investors apparently are channeling more of their funds into their respective domestic securities and are showing less interest in U.S. securities, which have become less attractive. Market perceptions that the Federal Reserve would have to raise U.S. interest rates in order to attract foreign capital caused the value of U.S. corporate stocks to fall 7.5 percent during the first three weeks of 1990. Prices of long-term bonds also dropped sharply as investors demanded steadily higher returns before they were willing to buy.²⁹

TREASURY SECURITIES

As figure 4 shows, Japanese investment activity in U.S. Treasury securities increased sharply after 1985. Many analysts acknowledge that this foreign capital inflow has eased pressure in U.S. credit markets, thereby holding down interest rates from the levels they might have climbed to without the additional capital. Japan is now the largest foreign holder of U.S. Treasury securities. But Japan's accumulation of Treasury securities pales in comparison to its trading activity in those securities. In 1988, for instance, Japanese investors purchased more than \$600 billion in Treasury securities, although their net accumulation amounted to only about \$20 billion.³⁰ This extensive market activity has increased the importance of Japanese investors in U.S. capital markets and added to the weight the market attaches to their actions. Japan's rapid accumulation of Treasury securities has also increased the exposure of

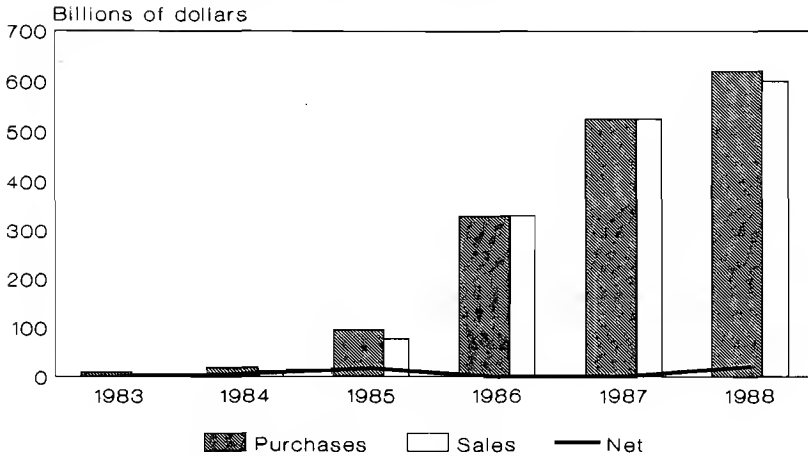
²⁷ Mattione, Richard P., and Norman R. Klath. Japan: The World's Leading Foreign Investor. *World Financial Markets*, November 10, 1989. Morgan Guaranty Trust Company, 1989. p. 3.

²⁸ *Ibid.*, p. 4-5.

²⁹ Berry, John M. Rising Rates Pounding Financial Markets. *The Washington Post*, January 23, 1990. p. A1.

³⁰ U.S. Department of the Treasury. Office of the Secretary. *Treasury Bulletin*, September 1989. Table CM-V-5.

FIGURE 4. Japanese Purchases and Sales of
Short-Term Marketable U.S. Treasury Securities



Source: U.S. Department of the Treasury. *Treasury Bulletin*.

Japanese investors to the effects of economic and financial fluctuations in the United States and elsewhere, and it has spurred some analysts to question the stability of the investments and the prospects for a sudden withdrawal of funds by foreign investors.³¹

Partial data on the foreign holdings of Treasury securities are provided by the Treasury Department. These data include the purchases and sales of corporate securities by private investors and of long- and short-term Government securities by private investors and official foreign government agencies. Transactions related to the activities of foreign governments, or official agencies, in their purchases of long- and short-term Treasury securities, however, are generally not provided on a country-by-country basis. Most of these types of transactions are keyed to exchange rate operations between the U.S. and foreign governments. A recent CRS report presents estimates of the total holdings of Treasury securities by foreign countries, including estimates of official and private holdings.³² These estimates indicate that official foreign holdings of Federal debt make up the largest share of Treasury securities held by foreigners. Because of the nature of these data, the dollar figures for individual countries, as indicated in table 1, should be viewed as representing the magnitude of their holdings rather than the exact amounts.

³¹ For an assessment of this argument, see: Jackson and Jackson, *Foreign Ownership of U.S. Assets: Past, Present, and Prospects*.

³² U.S. Library of Congress. Congressional Research Service. *Foreign Held Federal Debt: Country Holdings*. Report No. 89-609 E, by Philip D. Winters. Washington, 1989. 12 p.

Table 1. ESTIMATED FOREIGN-HELD U.S. FEDERAL DEBT, 1980-1988

(Billions of dollars)

	1980	1981	1982	1983	1984	1985	1986	1987	1988
Total.....	122.2	136.0	146.7	165.2	193.9	208.3	254.0	291.1	353.1
Japan.....	22.3	26.3	30.2	29.9	39.6	43.3	56.4	63.3	91.2
West Germany.....	18.0	16.9	15.9	17.2	19.6	24.1	30.6	43.9	38.3
United Kingdom.....	2.0	1.3	0.7	4.0	10.1	14.9	19.5	25.9	35.6
Taiwan.....	0.8	1.1	1.4	2.5	3.0	4.1	8.8	25.4	33.5
Switzerland.....	14.6	13.8	13.1	17.3	18.5	18.4	22.3	26.1	23.5
Canada.....	0.0	0.1	1.1	2.2	2.7	4.9	8.0	11.4	15.5
France.....	9.8	6.4	3.0	4.6	5.6	5.8	12.4	13.0	10.1
Spain.....	0.0	0.0	0.0	0.0	0.0	0.2	1.2	1.9	9.9
Australia.....	5.0	5.4	5.7	7.8	5.2	2.5	4.8	4.2	7.5
Norway.....	1.9	2.0	2.1	3.2	3.4	3.2	3.9	5.1	6.4

Source: U.S. Department of the Treasury, Office of the Secretary, *Treasury Bulletin*, various issues; U.S. Library of Congress, Congressional Research Service, *Foreign Held Federal Debt: Country Holdings*, Report No. 89-609 E, by Philip D. Winters, Washington, 1989, 12 p.

In 1988, foreigners held 16.5 percent of the \$2,118 billion Federal debt held by the public. This percentage is below the 18.1 percent, reached in 1980, but reflects an upward trend since 1984. Japan is the largest holder of Federal debt securities, followed by West Germany and the United Kingdom. Table 1 lists the holdings of Federal debt for the top ten countries, ranked by their 1988 holdings. Japanese investments in long-term U.S. securities account for nearly half of Japan's total investments in long-term foreign securities. The largest investors are Japan's commercial banks, followed by trust banks, insurance companies, and investment trusts.³³

CORPORATE STOCKS AND BONDS

Table 2 shows the transactions activity (purchases less sales) of the ten largest foreign investors. This table includes data on the net foreign purchases of marketable Treasury securities and U.S. corporate bonds and stocks by foreign private investors and official institutions. These data are not entirely equivalent to those in table 1, which include marketable and nonmarketable Treasury securities, as well as long-term and short-term securities. During the 1980-1988 period, foreign investors acquired \$358 billion in U.S. securities, half of which was in Treasury securities. Foreign investors also accumulated \$149 billion in U.S. corporate bonds and \$55 billion in U.S. corporate stocks, while they sold off \$33 billion in bonds of other U.S. Government corporations and foreign bonds and stocks. Japanese investors acquired the largest amounts of Treasury securities and corporate stocks for nearly every year in the 1980-1988 period. The United Kingdom acquired \$103 billion in U.S. corporate bonds over the nine-year period, which accounts for the bulk of its securities purchases.

³³ Ostrom, Douglas. Japan's Role As An International Creditor. *JEI Report*, September 16, 1988. Washington, Japan Economic Institute, 1988, p. 6.

INVESTMENT ACTIVITY

Quarterly data, as presented in appendix A, offer some important insights into the activity of Japanese and other foreign investors during the stock market decline of October 1987, and the subsequent market activity in 1988. The data indicate that foreign activity in the American securities markets is quite volatile, reflecting the broad array of factors that can affect investors' decisions. Among these factors are the rise and fall in interest rates, the inflation rate in the United States and abroad, the direction and pace of movement on the U.S. and foreign stock exchanges, and investor expectations about the future course of interest rates, economic growth, inflation, political developments, and government policies. This volatility both contributes to and, in some cases, is a factor in causing movements in the markets. As in the nineteenth century, the activities of foreign investors combine at times with domestic and foreign events to accentuate the response of the financial markets to economic events.

The stock market decline of October 1987 and market activity in 1988 provide insights into the behavior of Japanese investors during times of financial or economic crises in the United States. When the stock market dropped sharply, foreign investors had reasons to doubt the stability of the system and to attempt a withdrawal of their funds. Data indicate, however, that Japanese investors did not abandon the U.S. market.³⁴ Rather than stage a formal withdrawal from U.S. financial markets, Japanese investors shifted their investments among different types of financial products. The two events also demonstrate the importance of Federal Reserve policy to the order and functioning of financial markets. At times, investors' own beliefs, or expectations, concerning the course of Federal Reserve monetary policy have become factors in the short-run behavior of the markets.

Following the Plaza (September 1985) and Louvre (February 1987) accords, named for the locations where they were made, the Reagan Administration changed its stance on exchange rate intervention.³⁵ Through these accords, the United States, along with Japan and West Germany, agreed to intervene more aggressively in international markets to maintain the value of the dollar within certain, undisclosed, bands. With these accords in mind, investors scrutinized economic developments that could affect the course of the dollar, including the monthly U.S. merchandise trade data.

Some investors believed that the Federal Reserve in responding to changes in the merchandise trade performance, would attempt to affect the exchange rate value of the dollar indirectly through adjustments in U.S. monetary policy.³⁶ Investors related such policy actions to the effects they would have on U.S. interest rates and on the rate of inflation and, therefore, on the value of financial assets. As the Federal Reserve and the financial markets became

³⁴ U.S. Department of the Treasury. Office of the Secretary. *Treasury Bulletin*, various issues.

³⁵ Jackson, *Japan's Financial Liberalization: Effects on the United States*.

³⁶ Murray, Alan, and Walter S. Mossberg. Raising Discount Rate, Fed Puts Inflation War Ahead of Dollar Policy. *The Wall Street Journal*, August 10, 1988. p. 1; Lachia, Eduardo, and Walter S. Mossberg. U.S. and Japan Boost Efforts to Aid Dollar. *The Wall Street Journal*, January 14, 1988. p. 2; and Salwen, Kevin G., and Rose Gutfeld. As Trade Report Looms, Investors Seem to Think About Little Else. *The Wall Street Journal*, January 14, 1988. p. 35.

Table 2. NET FOREIGN PURCHASES OF U.S. SECURITIES

(Billions of dollars)

	1980	1981	1982	1983	1984	1985	1986	1987	1988	Total
All Securities										
Total.....	12.6	20.3	14.7	4.9	26.6	70.3	82.9	62.6	62.8	357.7
Japan.....	-2.8	1.5	-0.3	2.8	8.9	22.9	20.3	19.5	31.2	104.0
United Kingdom.....	4.5	1.9	1.0	0.4	7.5	26.4	28.3	11.9	15.3	97.2
West Germany.....	-2.5	2.0	7.8	5.2	4.6	4.2	6.0	14.9	-2.6	39.6
Canada.....	-0.7	-2.8	-2.0	0.7	3.8	-1.3	1.4	2.8	1.8	3.7
Switzerland.....	-0.1	0.7	0.8	2.1	-0.4	4.2	5.1	1.4	-2.4	11.4
France.....	0.6	1.2	0.0	0.2	-0.9	-1.1	0.1	0.3	1.0	1.4
Netherlands.....	-0.3	0.1	0.6	0.3	0.3	0.7	3.9	0.5	0.3	6.4
Australia.....	0.1	0.0	-0.2	-0.2	0.3	0.7	0.1	0.3	1.5	2.6
Singapore.....	0.0	0.1	2.0	-1.0	1.7	2.3	1.5	-2.3	-1.0	3.3
Hong Kong.....	0.5	-0.4	0.4	0.9	0.2	3.0	5.3	3.5	1.9	16.1
Marketable U.S. Treasury Securities										
Total.....	4.9	15.0	17.3	5.4	21.5	29.0	19.4	25.5	48.8	186.8
Japan.....	-1.7	1.3	0.8	2.3	6.3	17.9	0.0	0.9	21.8	49.6
United Kingdom.....	1.0	-0.6	-0.2	2.0	5.2	-2.0	4.5	4.0	9.7	23.6
West Germany.....	-2.9	1.1	5.3	3.7	2.9	1.9	7.6	13.3	-5.3	27.6
Canada.....	0.2	0.1	0.1	0.7	1.6	-0.2	0.9	4.6	3.7	11.7
Switzerland.....	-0.4	0.1	0.7	0.0	0.7	0.8	0.4	1.9	-1.0	3.2
France.....	0.1	0.3	0.4	0.4	-0.1	-0.2	-0.7	0.3	1.8	2.3
Netherlands.....	0.4	0.0	0.8	0.4	0.5	0.2	1.3	-0.9	-0.4	2.3
Australia.....	0.0	0.0	0.0	0.0	0.1	0.3	1.0	0.4	1.6	3.4
Singapore.....	0.0	-0.1	1.9	-1.2	1.4	1.6	0.5	-3.8	-0.5	-0.2
Hong Kong.....	0.2	0.1	0.4	0.6	0.4	1.3	0.5	0.0	1.3	4.8
U.S. Corporate Bonds										
Total.....	2.9	3.5	1.8	1.0	12.0	39.8	43.7	22.5	21.4	148.6
Japan.....	0.0	0.2	-0.1	0.5	0.7	3.0	5.0	0.6	4.9	14.8
United Kingdom.....	0.1	0.6	0.1	0.2	8.7	30.5	32.9	18.3	11.9	103.3
West Germany.....	0.2	0.7	1.9	0.3	1.5	2.1	-0.3	-0.2	1.0	7.2
Canada.....	0.1	-3.6	0.0	0.2	-0.1	0.1	0.2	1.0	0.4	-1.7
Switzerland.....	0.0	0.1	0.2	0.6	0.6	3.9	4.4	1.6	0.3	11.7
France.....	0.1	0.1	0.3	-0.1	0.2	0.2	0.2	0.2	0.1	1.3
Netherlands.....	0.1	0.1	0.0	0.0	0.1	0.2	0.3	0.2	1.4	2.4
Australia.....	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1
Singapore.....	0.0	0.0	0.0	0.1	0.0	0.0	0.2	0.0	0.1	0.4
Hong Kong.....	0.0	0.1	0.0	0.1	0.1	0.4	0.7	0.2	0.3	1.9
U.S. Corporate Stocks										
Total.....	5.4	5.8	3.9	5.4	-3.0	4.9	18.7	16.3	-2.0	55.4
Japan.....	-0.1	0.1	0.0	0.3	-0.1	0.2	3.3	11.4	1.9	17.0
United Kingdom.....	2.6	2.2	3.2	1.8	-0.7	1.6	4.8	0.7	-1.0	15.2
West Germany.....	0.2	0.0	0.4	1.1	0.0	0.7	0.4	0.0	0.2	3.0
Canada.....	0.9	0.7	0.2	1.2	1.7	0.3	0.8	1.0	1.1	7.9
Switzerland.....	0.3	0.3	-0.6	1.4	-1.5	0.0	1.6	-1.1	-2.3	-1.9
France.....	0.5	0.9	-0.2	-0.1	-0.4	-0.4	0.4	0.9	-0.3	1.3
Netherlands.....	-0.3	0.0	0.0	-0.1	-0.3	-0.1	0.9	0.9	-0.6	0.4
Australia.....	0.0	0.0	0.1	0.0	0.2	0.2	0.3	0.3	0.1	1.2
Singapore.....	0.0	0.0	0.1	-0.1	0.2	0.2	0.1	0.7	-0.3	0.9
Hong Kong.....	0.1	0.2	0.1	0.1	-0.6	-0.2	0.4	0.7	-0.3	0.5
Other*	-0.6	-4.0	-8.3	-6.9	-3.9	-3.4	1.1	-1.7	-5.4	-33.1

*Note: "Other" represents bonds of U.S. Government corporations and federally sponsored agencies and foreign bonds and stocks.
Source: U.S. Department of the Treasury, Office of the Secretary, *Treasury Bulletin*, various issues, Table C-M-V-5.

more skilled at anticipating each other's actions, investors attempted to act in advance of the Federal Reserve. In such a state of uncertainty, the financial markets may be more prone to following the actions of major Japanese investors. Japanese investors, howev-

er, attained the position of market leaders only recently. As a result, the major Japanese trading houses may not be accustomed to this role or the scrutiny which the market gives to their investment activity.³⁷ For instance, Japanese trading practices vary at times from those of U.S. traders because of some unique features of Japan's capital gains tax laws. If such trading were misinterpreted, it could spur a sharp downturn in the U.S. market. Some observers argue that the Federal Reserve should publicly announce its policy course as an important step in ending the instability in the markets that is created by investors' attempts to outguess the direction of Federal Reserve policies.³⁸ Others, including the Federal Reserve, argue otherwise.

In 1987, foreign purchases of Treasury securities increased sharply due, in part, to substantial exchange market intervention by major industrial countries as they purchased dollars to stem its depreciation. Foreign investors also bought Treasury securities in the fourth quarter as they moved out of some corporate stock and bond positions which they had held. Rising interest rates in the first three quarters of the year reduced corporate borrowing. The increased volatility in financial markets that followed the decline in equity prices and interest rates in the fourth quarter depressed market activity toward the end of the year. By the second quarter, foreign purchases of corporate stocks surpassed the amount foreigners had accumulated in all of 1986.

The stock market decline in October 1987, however, ignited a significant sell-off of stocks and a decline in foreign purchases of corporate bonds.³⁹ West German investors were the single most important foreign investors in Treasury securities throughout the year, while British investors were the most active in the corporate bond market. Japanese investors, who had sold off some of their Treasury securities, continued to make large purchases of corporate stocks as they attempted to diversify their portfolios. As other foreign investors sold off \$10 billion dollars in U.S. corporate stocks following the market's decline, Japanese investors added \$2 billion in stocks to their portfolios.

Foreign investors continued selling off their holdings of corporate stocks in 1988. Increased stock sales in the fourth quarter reflected the response of foreign investors to the fall in stock prices that resulted from an increase in short-term interest rates. Purchases of Treasury securities were strong in the first half of the year, reflecting the strength of the dollar and increases in long-term interest rates. Both Japan and the United Kingdom sustained their acquisitions of Treasury securities. Some foreign monetary officials decreased their holdings of Treasury securities because of their intervention in exchange markets to limit the depreciation of their currencies against the dollar. A decrease in foreign purchases of U.S.

³⁷ Brauchli, Marcus W. Japanese Investors Try to Quell Fear They'll Ditch U.S. Holdings. *The Wall Street Journal*, February 2, 1990, p. C1.

³⁸ U.S. Library of Congress. Congressional Research Service. *Federal Reserve: Development and Responsiveness to Government*. Report No. 89-636 E, by William Jackson. Washington, 1989. p. 22.

³⁹ U.S. Department of Commerce. Bureau of Economic Analysis. *Survey of Current Business*, March 1988. U.S. International Transactions, Fourth Quarter and Year 1987, by Christopher L. Bach. p. 38-39.

corporate stocks was partially offset by purchases of corporate bonds.⁴⁰

Data for the first half of 1989 (the latest data available) indicate that Japanese, Canadian, and West German investors reduced their holdings of Treasury securities in the second quarter to limit the depreciation of their currencies against the dollar. Foreign investors also reduced their net purchases of corporate bonds as they shifted to purchases of corporate stocks in the second quarter. The U.S. stock market rose 11 percent during the second quarter on the strength of a sustained rise in corporate earnings and a sharp drop in U.S. interest rates.⁴¹

EFFECTS OF A JAPANESE WITHDRAWAL

The present state of the U.S. and foreign economies and the increased international linkages among financial markets reduce the prospects of a financial collapse in the United States. Nevertheless, these developments increase the potential for transmitting financial disturbances from one market to another and for having those disturbances affect the production side of the economy. A withdrawal of Japanese investments from the U.S. economy during times when those funds are necessary for meeting the gap between domestic demand and supply of funds would have significant short-run effects. Because the United States, along with all other major economies, does not tie its money supply to precious metals, an attempt by any investor, whether American or foreign, to withdraw a significant amount of funds from the U.S. economy would be quickly noticed by the financial markets. As investors noticed the withdrawals, they would likely follow the Japanese in selling off their holdings of bonds and stocks, driving the prices of the assets down sharply, and making U.S. interest rates rise abruptly. Any investor selling assets at this point would probably lose a significant portion of the value of the asset.

A similar downward spiral would occur over the short-run in the value of the dollar if Japanese or other foreign investors attempted to convert their dollar holdings into foreign currency. The financial and currency markets would probably adjust quickly to the demands of foreign sellers of dollars by driving up the price of foreign currencies. This would result in a decline in the value of the dollar and a further erosion in the value of the assets of foreigners attempting to withdraw from the U.S. markets.

Over the long run, the effects of a Japanese investment withdrawal would be limited, primarily because those factors which caused the Japanese to withdraw would attract other foreign, non-Japanese, investors. As U.S. interest rates rose in response to the selling of bonds, other investors would probably be attracted to the higher returns of the assets, stemming the decline in stock and bond prices. Also, the rise in U.S. interest rates would attract for-

⁴⁰ U.S. Department of Commerce. Bureau of Economic Analysis. *Survey of Current Business*, March 1989. U.S. International Transactions, Fourth Quarter and Year 1988, by Christopher L. Bach. p. 37-39.

⁴¹ U.S. Department of Commerce. Bureau of Economic Analysis. *Survey of Current Business*, September 1989. U.S. International Transactions, Second Quarter 1989, by Christopher L. Bach. p. 32-33.

eign capital, which would curtail the rise in interest rates. A decline in the value of the dollar against the yen would also improve the international price competitiveness of U.S. goods. As a result, U.S. exports would increase, possibly narrowing the gap between the earnings on U.S. exports and the amount Americans spend on imports, thereby reducing the amount of foreign capital that the U.S. economy would need. Japanese investors would also have to find places to invest their funds. Even if they did not reinvest the funds in the United States, the infusion of Japanese capital back into stocks and bonds abroad would likely have spillover effects on the United States and on U.S. stocks and bonds.

Recent events also demonstrate that financial markets are highly interrelated.⁴² These markets are sensitive to domestic and international developments, including political events,⁴³ investor's perceptions of market behavior and government policies, inflation and interest rates, and government policy.⁴⁴ For the past several years, the Dow Jones average of industrial stocks in the United States and Japan's Nikkei stock average (as well as other foreign stock markets) have moved together. As figure 5 shows, this trend is apparent in the movement of the two stock price indices during January 1990. On January 12, a 666-point plunge in the Nikkei average precipitated a 71-point sell-off in the Dow Jones industrials. A few weeks later, a 600-point drop in the Nikkei sent the Dow tumbling 60 points in the first half-hour of trading. At other times, activity in the Dow or in the London markets may be the event that affects movements in major markets throughout the world. This growing interplay means that disruptions in the U.S. financial markets or in the U.S. economy could quickly reverberate through other financial markets in the world. Under these circumstances, a financial crisis in the United States that was spurred by a withdrawal of capital by Japanese investors would be likely to affect financial markets in London, Tokyo, and other financial centers. The connections between financial markets, combined with Japan's relatively large international financial exposure, makes it likely that attempts to hurt the United States through financial pressure would affect all financial markets, including Japan's.

Japanese investors, especially those in charge of managing large amounts of investment funds, scoff at the suggestion that they would dump their Treasury bonds to punish the United States or to pull out of U.S. financial markets. One such manager argues that it would be financial suicide for Japanese investors to attempt a pullout because of the amount of money they would lose in the attempt.⁴⁵ As a result of this assessment, the Japanese fund managers feel hampered by the sheer size of the funds they control. Indeed, some managers argue that they have to move the tens of

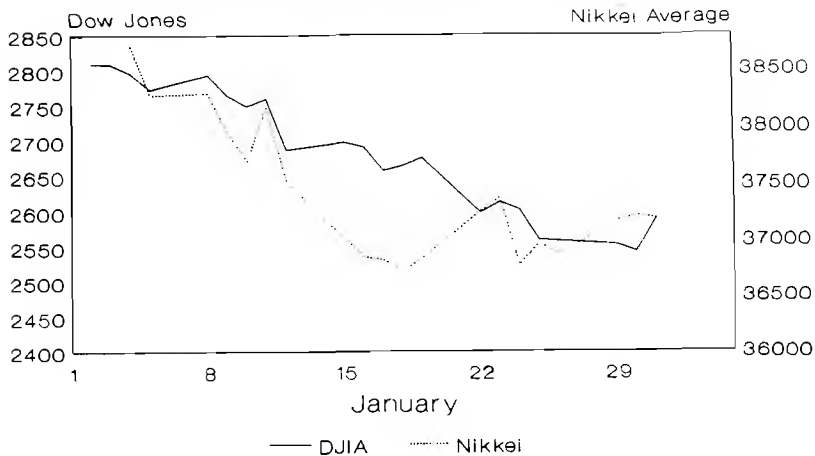
⁴² McCartney, Robert J., and Steven Mufson. Bond Offering Triggers Volatility in Global Markets. *The Washington Post*, January 25, 1990. p. C1.

⁴³ Hinden, Stan. Gorbachev Becomes Mover and Shaker of Markets. *The Washington Post*, February 2, 1990. p. G1; and, Tokyo Stock Prices Fall Sharply Amid Worries Over Election, Wall Street; London Issues Ease. *The Wall Street Journal*, January 25, 1990. p. C12.

⁴⁴ Naff, Clayton. Rising Rates Add Allure to Japan Bonds. *The Washington Post*, January 26, 1990. p. F1; and, Berry, John M. Treasury Sets Heavy Borrowing. *The Washington Post*, February 1, 1990. p. D1.

⁴⁵ Sterngold, James. Tokyo's Wary Money Managers. *The New York Times*, January 22, 1990. p. D1.

FIGURE 5. Dow Jones and Nikkei Stock Price Indices, January 1990



billions of dollars they have already invested overseas in tiny increments to avoid causing a financial panic abroad. Moreover, most Japanese money managers operate on a three-to five-year investment horizon, so they are not as concerned as other investors with month to month changes in the financial markets.⁴⁶ These fund managers typically make changes in the composition of their portfolios only at the margin and do not make significant changes in the overall composition of their portfolios, particularly in the shares of foreign or domestic securities.

It also seems highly unlikely that the Federal Reserve would sit on the sidelines watching while the U.S. economy suffered a financial collapse. Indeed, in the 1970s and 1980s, the Federal Reserve responded quickly to financial and economic crises. For instance, the Federal Reserve supplied massive amounts of funds to the U.S. banking system following the stock market decline of October 19, 1987, to restrain increases in interest rates and to assure the liquidity of the system.⁴⁷ From this example, it seems likely that the Federal Reserve would intervene in a similar fashion if the United States faced a financial crisis induced by a withdrawal of capital by foreign investors.

Japan's growing presence in international financial markets is also having broad implications for Japan's domestic economic policies. As Japan has emerged as an international financial power, economic policymakers in Japan have been less successful in keeping domestic economic policies from having international repercus-

⁴⁶ Brauchli, Japanese Investors Try to Quell Fear They'll Ditch U.S. Holdings, p. C1.

⁴⁷ Ibid., 34-35; U.S. Library of Congress. Congressional Research Service. *Financial Crises of the 1970s and 1980s: Causes, Developments, and Government Responses*. Report No. 89-290 E, coordinated by William Jackson. Washington, 1989. 37 p.; and, Stewart, James B., and Daniel Hertzberg. How the Stock Market Almost Disintegrated a Day After the Crash. *The Wall Street Journal*, November 20, 1987. p. 1.

sions. Interest rate policies set in Tokyo can affect the value of the dollar and the price of bonds sold at Government auctions. Some analysts argue that Japan's new importance means that when Japan sneezes, Wall Street gets sick.⁴⁸

CONCLUDING OBSERVATIONS

To many observers, concerns over Japanese, as well as other foreign, investments in the United States seem misplaced. As long as the Nation's credit demands outstrip its domestic supplies, the United States will be dependent on foreign capital to finance economic activity at interest rates that are lower than those that would exist without the foreign funds. Recent experience demonstrates, however, that the inflow of foreign capital comes with a price, primarily the requirement that the United States maintain yields on financial assets that are sufficient to attract foreign capital. At times, this requirement may mean that the United States will have to juggle, or even sacrifice, some domestic economic goals, including lower interest rates, to help sustain economic growth, with the need to maintain financial yields that are high enough to attract foreign capital.

Nevertheless, Japanese investors' substantial activity in U.S. financial markets has become an important factor in the performance and direction of those markets. At times, the sheer magnitude of Japan's investment activity in U.S. financial markets can move them. Also, other market participants closely monitor the investment activity of the Japanese.⁴⁹ As a result, Japanese investors may have to be even more circumspect about the potential impact their actions may have on other investors, regardless of the rationale for their actions: decisions to buy and sell, or to participate or not to participate, may be misinterpreted by the market and spur significant movements in the market which were entirely unintended by the Japanese investors. The financial assets the Japanese have accumulated in the United States and the attendant importance of their position in the U.S. financial markets could impose increasingly tighter constraints on the freedom of Japanese investors if they are to remain significant investors in the U.S. markets without unintentionally causing collapses⁵⁰ in those markets.

Any abrupt withdrawal of capital from the U.S. economy by investors, whether foreign or domestic, would have significant short-run implications for U.S. financial markets and the economy. Long-run implications, however, would be less severe. Many Japanese financial and political leaders doubt that such a prospect is realistic, because of the economic losses they would incur if a withdrawal were attempted. Floating exchange rates and the increased speed with which information is processed and passed from one market to another would work against Japanese or other large investors who attempted to withdraw their funds without experiencing significant declines in the value of their assets in the United States

⁴⁸ When Japan Gets the Jitters, the World Trembles. *Business Week*, February 12, 1990. p. 83.

⁴⁹ Sterngold, Tokyo's Wary Money Managers, p. D1.

⁵⁰ A collapse would be a significant drop in market indicators over a short period of time that overwhelms the capacity of the market mechanism and forces regulatory agencies to intervene.

and in Japan. Also, any actions Japanese investors take which might hurt the United States economically would also be likely to hurt Japanese investors and the Japanese economy. As a result, some analysts estimate that Japanese investments in the United States have tied Japanese interests more closely to the fortunes of the U.S. economy and to the gyrations of the dollar in foreign exchange markets. Indeed, Japanese government policy seems closely attuned to assuring the stability of the dollar in the international currency markets.

Similar constraints will affect Japanese domestic economic policies. Until recently, Japan's policymakers have been successful in keeping Japan's economy isolated enough to allow them to conduct monetary and fiscal policy operations without considering the international effects of those policies. Events in 1989 and early 1990 indicate, however, that financial market integration has also brought an increased integration of national economies. For Japan's policymakers, this increased integration of financial markets and national economies reduces the control they will be able to exercise over the Japanese economy and complicates their economic policymaking. Also, this increased integration means that Japanese leaders will have to consider more carefully the international context and the attendant ramifications of the policies they adopt; it may even mean that Japan will have to sacrifice some of its domestic economic goals in order to ensure the stability of the international markets.

It also seems unlikely that the multiplicity of foreign investors (Japanese, European, etc.) would simultaneously "conspire" to destroy the U.S. economy, given their own financial stake in it. Even in Japan, financial liberalization has allowed added numbers of Japan's financial institutions to seek out foreign investments. The investments generally offer higher financial returns and allow the institutions to broaden their portfolios, thereby reducing the risk associated with any one investment. With a large number of different financial institutions investing abroad, gaining a coordinated withdrawal from the U.S. market would be difficult.

Japanese financial institutions have sizable amounts of funds to invest, both at home and abroad, which encourages them to ensure the long-run stability of the U.S. markets. The United States is not only a convenient place to invest these funds, but U.S. capital markets are among the few, if not the only, capital markets in the world that are large enough to handle such sizable funds. As long as Japanese investors continue to have large amounts of funds to invest, they are unlikely to stage a coordinated, purposeful withdrawal from U.S. financial markets. Nevertheless, financial investments are highly volatile and subject to slight differences in yields. As differences between U.S. and foreign yields narrow, U.S. assets lose some of their attraction. Some Japanese investors, for instance, may refrain from purchasing significant new amounts of U.S. Government securities because of changes in the difference in yields between U.S. and Japanese securities. For example, in early January 1990, real yields (after inflation) on Japan's benchmark

10-year government securities were about 5.5 percent, compared with a real return of 3.7 percent on U.S. Treasury securities.⁵¹

APPENDIX A. NET FOREIGN PURCHASES OF U.S. SECURITIES

(Quarterly data, billions of dollars)

	1986				1987				1988				1989	
	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II
All Securities														
Total.....	21.54	30.17	22.26	18.53	30.50	24.10	14.49	2.21	23.58	23.32	4.98	11.98	27.34	5.47
Japan.....	4.37	3.36	11.98	19.52	3.75	8.93	5.44	1.57	13.55	8.50	3.61	5.73	4.52	-0.10
United Kingdom..	7.68	10.54	4.62	5.78	6.82	2.15	4.61	-1.53	3.05	4.89	6.28	1.12	4.84	2.74
Canada.....	-0.95	0.89	1.16	0.23	0.70	0.50	0.21	1.63	-0.37	2.05	-1.35	1.46	-0.93	-1.29
France.....	-0.57	0.38	0.41	0.12	1.15	0.12	0.50	-1.48	-0.57	0.61	0.77	0.14	0.62	0.69
West Germany....	0.87	1.14	2.02	2.43	3.55	3.83	3.34	3.55	6.12	-1.31	-6.65	-0.72	2.29	-2.04
Other.....	10.14	13.86	2.07	-9.55	14.53	8.57	0.39	-1.53	1.88	.58	2.32	4.25	16.00	5.47
Marketable U.S. Treasury Securities														
Total.....	8.50	9.14	5.60	2.05	13.86	8.57	2.80	7.79	26.69	12.24	-1.38	10.90	20.42	1.37
Japan.....	0.88	1.06	5.05	-2.47	-0.69	1.08	2.04	-1.49	12.30	3.42	1.70	4.29	4.46	-3.53
United Kingdom..	2.80	1.03	-0.14	0.94	1.53	-1.03	-0.31	3.72	4.01	1.66	3.23	0.70	2.63	2.41
Canada.....	0.17	0.66	-0.03	0.08	1.14	1.15	1.24	1.01	1.29	2.22	-0.78	1.05	-0.05	-0.25
France.....	-0.35	0.09	0.06	-0.48	0.14	-0.43	0.33	0.23	0.25	0.69	0.62	0.31	0.15	1.26
West Germany....	0.91	0.96	2.91	2.93	3.36	3.80	2.44	2.97	5.36	-2.59	-6.98	-1.15	0.71	-1.98
Other.....	4.09	5.34	--	1.05	8.38	4.00	-2.94	1.35	3.48	6.84	0.83	5.70	12.52	3.46
Corporate Bonds														
Total.....	11.39	12.61	10.32	9.27	7.70	6.43	6.76	1.77	2.30	6.58	6.07	7.24	5.59	4.00
Japan.....	1.88	0.61	1.48	1.08	1.06	-0.43	-0.28	0.15	0.29	1.63	1.66	1.28	-0.14	-0.86
United Kingdom..	7.97	9.64	7.83	7.29	5.30	5.73	5.67	1.65	1.52	3.39	3.32	4.44	3.39	3.93
Canada.....	-0.34	0.18	0.21	0.20	0.17	0.24	0.14	0.44	0.08	0.23	-0.04	0.16	0.37	-0.03
France.....	0.00	0.06	-0.02	0.21	0.10	0.04	0.05	0.02	0.07	0.01	0.06	-0.07	0.14	0.12
West Germany....	-0.03	0.31	-0.27	-0.13	0.12	-0.08	-0.02	-0.19	0.24	0.52	0.12	0.12	0.22	-0.10
Other.....	1.91	1.81	1.09	0.62	0.95	0.93	1.20	-0.30	0.10	0.80	0.95	1.31	1.61	0.94
Corporate Stocks														
Total.....	6.36	7.02	4.70	0.27	9.83	8.59	5.02	-7.24	-0.76	0.58	0.81	-2.76	0.38	4.50
Japan.....	0.35	0.85	1.39	0.68	3.49	4.09	1.92	1.85	1.07	1.54	0.22	-0.90	-1.51	1.87
United Kingdom..	2.27	1.33	1.46	-0.37	2.42	1.53	1.53	-4.99	-0.60	-0.14	0.74	-1.04	0.76	1.11
Canada.....	0.13	0.22	0.40	0.03	0.32	0.07	0.19	0.54	-0.08	0.17	0.26	0.73	0.09	0.03
France.....	-0.16	0.35	0.31	-0.05	1.24	0.56	-0.02	-0.88	-0.13	-0.04	-0.09	-0.02	0.27	0.03
West Germany....	0.59	-0.02	-0.17	-0.09	0.10	-0.14	-0.08	0.05	0.20	0.01	-0.01	0.02	0.15	-0.35
Other.....	3.18	4.29	1.31	0.07	2.26	2.48	1.48	-3.81	-1.22	-0.96	-0.31	-1.55	0.62	1.81

Source: U.S. Department of the Treasury. Office of the Secretary. *Treasury Bulletin*, various issues. Table C-M-V-4.

⁵¹ Mitchell and Sesit, *Foreign Buyers Could Pull Back on Treasuries*, p. C1.

JAPAN-U.S. JOINT MANUFACTURING VENTURES

By Dorothy B. Christelow ¹

CONTENTS

	Page
Introduction and Summary.....	209
The Role of Joint Ventures in International Direct Investment.....	210
Post-War Trends in U.S.-Japan Direct Investment.....	212
Factors Influencing U.S.-Japan Joint Manufacturing Ventures.....	213
Comparative Advantage in International Trade.....	213
Barriers to Wholly Owned Foreign Investment.....	215
Joint Ventures in Major Industries.....	217
Potential Gains From Joint Ventures.....	219
Conclusions.....	221
Appendix. Japanese Firms' U.S. Manufacturing Affiliate Assets.....	222

INTRODUCTION AND SUMMARY

As anti-Japanese sentiment has gathered momentum in recent years, some of the animus originally focussed on the Japanese trade surplus with the United States has been shifted to the surge in Japanese direct investments into this country. When the Japanese advance takes the form of a joint venture with a U.S. company, it is rightly viewed as another form of competition, and some have warned that the Japanese are using joint ventures to acquire U.S. technology for later use in world-wide competition.

Because joint ventures account for an estimated 40 percent of Japanese companies' U.S. manufacturing affiliate assets and over 70 percent of U.S. companies manufacturing affiliate assets in Japan, they deserve attention. This article focuses on what motivates these joint ventures, their special role in transmitting technology and manufacturing skills from one country to the other, and which country and its multinationals stand to gain more of these intangible assets from current joint ventures.

There is ample evidence that both U.S. and Japanese firms have used joint ventures to acquire technology and manufacturing skills and thus to improve or defend their competitive position in world markets. In many cases, both partners have been so motivated, matching complementary strengths and weaknesses. But in other cases, strong foreign investors with little to gain from joint ventures have nevertheless chosen this route when confronted with host-country barriers to wholly owned investment. Current barriers

¹ The author, a former economics specialist in international trade and finance at the Federal Reserve Bank of New York, is now a consultant based in New Canaan, Connecticut. Earlier versions of this article were presented to the Japan Economic Seminar, meeting at Harvard University on April 14, 1989, and published in *Challenge*, November-December 1989.

are the market practices of business organizations in Japan and a perceived threat of government action in the United States.

One way of judging which country and its multinationals stand to gain more intangible assets from current U.S.-Japan manufacturing joint ventures is to look at the performance of both countries in world trade in the industries where joint ventures are found. The presumption is that a country's stronger export performance in any given industry is based on superior technology, manufacturing or other managerial skills or all of these things. The balance has shifted over time. But in most years, the potential gains appear to have been greater for the United States than for Japan, and most U.S. partners have learned how to exploit their opportunities. The current imbalance is at least partly due to the reluctance of major firms in strong U.S. industries, most notably aircraft production, to enter into full-fledged manufacturing joint ventures with Japanese companies. Any change in policy could sharply reduce the current U.S. advantage.

THE ROLE OF JOINT VENTURES IN INTERNATIONAL DIRECT INVESTMENT

In the typical international joint venture, ownership is divided between a host-country firm and a foreign firm. The ownership shares may vary from equality to various other proportions which still give each partner a real voice in policy determination. It is also reasonable to classify as joint venture a company in which a foreign firm has taken an ownership position sufficient to give the foreigner a role in policymaking, but not enough to assure complete control. A good example is the Japanese firm, Isuzu, in which General Motors' equity interest is less than 40 percent. The more closely the remaining share of equity is held—close holdings are more typical of Japan than the United States—the nearer the firm comes to being a prototypical joint venture.

The role played by joint ventures in international economic relations is, in many ways, like that of wholly-owned direct investment. Three types of direct investment are described in the literature: horizontal, i.e., an expansion of manufacturing in a given industry from one country to another; vertical—up or down the extraction-production-distribution stream; and diversified, by firms seeking growth in new industries. Most U.S.-Japan manufacturing joint ventures now operating are horizontal investments, although some involve diversification by one partner or the other.

Direct investment differs from other international capital transfers in that it consists of bundles of financial capital and other internationally mobile intangible assets such as technology and production and managerial skills, rather than financial capital alone. The intangible assets in the bundle often derive from institutions or cultural qualities peculiar to a particular country—such as production skills in Japan or scientific skills in the United States—which are, in turn, partly responsible for a country's industry pattern of comparative advantage in trade. For companies in industries enjoying that comparative advantage, horizontal direct investment is an alternative to exporting or to sale of technology, chosen when it is expected to maximize the return on these bundles of

assets. Diversification direct investments are usually made by firms in mature industries seeking to apply their accumulated profits and managerial or production skills to growth industries in foreign countries.²

As direct investment in manufacturing proceeds, it gradually alters the industrial structure of the host country and the patterns of comparative advantage of both countries in world markets. This is accomplished partly through the initial transfer of capital and intangible assets but also through a secondary dissemination generated by demonstration effects, competition, and "leakage" of technology³ in the host country.

Despite the similarities of joint and wholly owned direct investments, international joint ventures have certain distinctive characteristics. One is that joint ventures accelerate the secondary dissemination of intangible assets in the country initially lacking them since venture partners are in a better position than outside competitors to learn the new skills and technology quickly and then to apply them to the rest of their business. This is an advantage for the partner and country gaining the new intangible assets but a disadvantage for the partner contributing them unless it gains other assets in exchange. The other special quality of joint ventures that is of interest here is that they require a special effort by both partners to reconcile conflicting national and corporate cultures and the divergent priorities and objectives of the partners. In view of these two distinctive features of joint ventures, it is not surprising that recent studies of U.S. multinationals have found that most firms investing abroad prefer wholly-owned ventures and, absent barriers to them, resort to joint ventures only when they are weak in one or another important intangible asset.⁴

Because of these understandable corporate preferences, there are two distinct types of joint ventures: barrier-related and market-driven. Barrier-related joint ventures are those forced on strong foreign entrants by barriers to wholly foreign-owned investments which the foreigners would otherwise prefer. Such barriers are sometimes created by governments and sometimes by strong industrial groups with powers to restrict market entry in an effort to encourage joint ventures and thus maximize the gains to domestic firms and the domestic economy from investment by foreigners.

Market-driven joint ventures are voluntary pairings of firms with mutually complementary strengths and weaknesses. Three sorts of voluntary partner pairings are possible: a strong member of a disadvantaged national industry with a smaller or weaker member of a national industry having a strong comparative advantage; two members of broadly competitive national industries with specialized strengths to trade; and a strong member of a mature in-

² For a survey of the very extensive literature on multinational and international direct investment, see: Caves, Richard E. *Multinational Enterprise and Economic Analysis*. Cambridge, Cambridge University Press, 1982.

³ Information on technology leakage from U.S. multinationals in the 1970s is given in Mansfield, Edwin, and Anthony Romeo. Technology Transfers to Overseas Subsidiaries by U.S.-based Firms. *Quarterly Journal of Economics*, December 1980, p. 737-750.

⁴ Franko, Lawrence G. New Forms of Investment in Developing Countries by U.S. Companies: A Five Industry Comparison. *The Columbia Journal of World Business*, Summer 1987, p. 39-55; and, Gomez-Casseres, Benjamin. Ownership Structure of Foreign Subsidiaries. *Journal of Economic Behavior and Organization*, v. 11, 1989, p. 1-25.

dustry wishing to diversify into a new growth industry and a small innovative member of that new growth industry. U.S.-Japan direct investment relations include many examples of both barrier-related and voluntary joint ventures.

POST-WAR TRENDS IN U.S.-JAPAN DIRECT INVESTMENT

U.S.-Japan direct investment in manufacturing is largely a product of the 1970s and 1980s. Even though the U.S. share of international direct investment in manufacturing worldwide reached its peak in the late 1960s, its position in Japanese manufacturing accounted for only 2 percent of that total in 1969, less than \$700 million.⁵ At that time, Japanese outward investment in manufacturing was negligible—worldwide and in the United States. The modest scale of investment both ways was due to a changing array of Japanese foreign exchange regulations (including insistence on joint ventures for most inward investments) designed to protect the balance of payments and promote the growth of strong and independent domestic industries.⁶

By the 1970s, however, growing strength of Japanese industry and a burgeoning current account surplus led Japan to liberalize its policies. A more receptive attitude toward inward investments was evident as early as 1970, when the first U.S. investments in Japanese auto companies were permitted. In 1974, wholly owned foreign ventures were permitted in almost all manufacturing. And by 1980, manufacturing investments were subject only to a "prior notification" requirement which gives government the power (not used thus far) to block investments not in the national interest.⁷ Over the same decade, restraints on outward investment were also gradually eliminated.⁸

In the freer atmosphere of the 1970s and 1980s, investment flows in both directions increased, especially from Japan to the United States. By 1988, according to Department of Commerce reports, Japan's direct investment position in U.S. manufacturing topped the \$8 billion U.S. position in Japan by over 50 percent.⁹ However, the U.S. position in Japan still accounts for less than 6 percent of its total direct manufacturing investment position abroad while Japanese data suggest that its investments in the United States accounted for around 30 percent of its total outward investment in manufacturing.¹⁰

For U.S. firms' Japanese affiliates, joint ventures have continued to predominate, despite the lifting of official constraints. Taking the percentage of affiliate assets in non-majority-held firms derived

⁵ U.S. Department of Commerce. *Survey of Current Business*, September 1973, p. 24-25.

⁶ For Japan's early experience, see: Kraus, Lawrence B., and Suetō Sekiguchi. Japan and the World Economy. In: Patrick, Hugh, and Henry Rosovsky, eds. *Asia's New Giant*. Washington, The Brookings Institution, 1976. p. 440-450.

⁷ U.S. Department of Commerce. *Foreign Direct Investment in the United States*, Appendix N. Washington, April 1976. p. 68-77; and, *Investment Climate in Foreign Countries*, v. 1. Washington, 1985. p. 201-211.

⁸ International Monetary Fund. *Annual Report on Exchange Arrangements and Exchange Restrictions*. Washington, various issues.

⁹ U.S. Department of Commerce. *Survey of Current Business*, August 1989, p. 52 and 69.

¹⁰ Hyun, Jung Taik, and Katherine Whitmore. *Japanese Direct Foreign Investment: Patterns and Implications for Developing Countries*. Washington, The World Bank, 1989. p. 56. The Ministry of Finance data presented are not comparable to direct investment as reported in Japan's balance of payments statistics.

from Department of Commerce data as the best available indicator of U.S. companies' joint ventures abroad, we find that the importance of these ventures' assets in their Japanese manufacturing affiliate assets declined from 83 percent in 1977 to 73 percent in 1987. This is far higher than their percentage importance in all U.S. companies' foreign manufacturing ventures—25 percent in 1987.¹¹

For Japan's U.S. manufacturing affiliates the author's estimates, based on surveys by the Department of Commerce and the Japan Economic Institute, suggest that the proportion of joint ventures remained close to 40 percent from 1980 to 1987. (See appendix note for sources and methods of estimate.) Comparable information on other countries' manufacturing joint ventures in the United States is not available.

FACTORS INFLUENCING U.S.-JAPAN JOINT MANUFACTURING VENTURES

As we have seen, country patterns of comparative advantage and barriers to wholly foreign-owned investment both play important roles in motivating joint ventures. Thus we need to know something about these two influences in the U.S.-Japan case.

COMPARATIVE ADVANTAGE IN INTERNATIONAL TRADE

We measure trade performance in terms of comparative advantage as it is reflected in each country's industry patterns of specialization in its exports to all OECD member countries. Indicators of trends in country comparative advantage from 1974 to 1987 are given in table for each of twelve industries for which roughly comparable trade and investment data are available. The figures in the country rows are the ratios of the exporting country's share in OECD imports of the product specified to that country's share in OECD imports of all manufactures. A ratio substantially higher than one signifies specialization based on comparative advantage. The denominator in those ratios, each country's share of OECD imports of manufactures, tends to remove the effects of wide exchange-rate swings characteristic of the period since all of a country's exports of manufactures respond quite similarly to those swings. It also normalizes each country's trade performance, allowing it to be compared directly to that of another country whose aggregate exports of manufactures may be larger or smaller, in absolute terms and relative to GNP. A ratio significantly higher for one country than for the other suggests that one country is significantly stronger than the other in their bilateral competitive relationships in world trade. This bilateral relationship, expressed as the U.S. ratio/Japanese ratio, given in the industry rows of the table, may be considered a rough indicator of the strength of the U.S. trade position relative to Japan's in that industry.

The indexes, which relate only to country trade, do not take into account the production of U.S. and Japanese multinationals outside their home country, much of it undertaken as an alternative to ex-

¹¹ U.S. Department of Commerce. *U.S. Direct Investment Abroad, 1977*. Washington, 1981. p. 111 and 230; and, *U.S. Direct Investment Abroad, Operations of U.S. Parent Companies and Their Foreign Affiliates, Preliminary 1987 Estimates*. Washington, 1989. Tables 4 and 23.

ports. However, there is reason to think that the trade indicators are broadly reflective of the trends and often the levels of the multinationals' comparative advantage as well. As already noted, U.S. multinationals' foreign investments far exceeded those of Japan's multinationals in the 1970s, but the latter have been gaining ground since, mirroring shifts in trade positions shown in the table. Moreover, recent work by Kravis and Lipsey on U.S. multinationals, including their majority-owned foreign affiliates, show that their trade position was stronger than that of the United States as a country in medium technology industries as a group (in which they include automobiles and industrial chemicals) but very similar to the U.S. position in the high technology industry group (which includes computers, electronic components, and pharmaceuticals). The study also finds that the trends in the multinationals' trade positions have been similar to those of the United States in both high and medium technology industry groups since 1977.¹²

Table 1 suggests that, in chemicals, the United States has had only a modest comparative advantage in world markets (where European producers have also been very strong) but a pronounced advantage relative to Japan. The latter has been based in part on a U.S. technological lead in many products and to economies of scale. But in addition, Japanese producers of basic chemicals were handicapped until 1983 by government efforts to protect high-cost Japanese producers of feedstocks.¹³ At the other end of the spectrum, Japan has demonstrated a growing advantage relative to the United States in telecommunications and sound recording apparatus, metalworking machinery, road vehicles, and steel. In each of these cases, Japan's superior production methods have fueled its recent gains.

In the middle ground is a broad group of industries for which the advantage once enjoyed by the United States has rapidly narrowed or has given way to balanced competition. In industrial machinery and office machinery including computers, the U.S. edge was decisive in the 1970s and early 1980s but has slipped considerably since then. In electrical and electronic equipment (other than telecoms etc.), a group which includes semiconductors and sophisticated automation controls, the position appears to be balanced overall.

If the twelve industries shown in the table were further subdivided, we would find still more variation. For example, in computers the U.S. lead in supercomputers is offset by Japanese gains in personal computers. In semiconductors, U.S. firms have forged ahead in the high-tech area of microprocessors while Japanese firms have developed a strong lead in mass-produced memory chips.¹⁴ Even in chemicals, where the U.S. lead looks strongest, Japan is competitive in a number of products, including printers ink and vitamins, while in telecommunications equipment, where the Japanese lead looks strongest, U.S. firms seem to be competitive in telephone equipment and systems.

¹² Kravis, Irving B., and Robert E. Lipsey. *Technological Characteristics of Industries and the Competitiveness of the U.S. and Its Multinational Firms*. Cambridge, Mass., National Bureau of Economic Research, 1989. Working Paper 2933, p. 8a.

¹³ Bedside Manners for Petrochemicals. *The Economist*, February 19, 1983, p. 77.

¹⁴ Borrus, Michael G. *Competing for Control, America's Stake in Microelectronics*. Boston, Balingier, 1988.

Table 1. COMPARATIVE ADVANTAGE OF U.S. AND JAPANESE EXPORTERS AS REFLECTED IN TRADE SPECIALIZATION

(Averages of yearly ratios)

	1974-77	1978-82	1983-87
Pharmaceuticals	4.55	4.17	5.08
United States	1.08	1.13	1.23
Japan	0.24	0.27	0.25
Soaps, cleaners & toilet goods	21.11	14.10	7.81
United States	0.93	0.83	0.71
Japan	0.05	0.06	0.10
Other Chemicals	5.26	5.93	4.37
United States	1.06	1.11	1.10
Japan	0.20	0.19	0.26
Specialized Industrial Machinery	2.68	2.45	1.45
United States	1.49	1.52	1.18
Japan	0.56	0.62	0.83
Office and Computing Machinery	1.86	1.80	1.28
United States	2.37	2.70	2.30
Japan	1.28	1.50	1.79
Electrical Equipment, etc. n.e.s.	1.28	1.21	1.01
United States	1.15	1.24	1.21
Japan	0.90	1.02	1.19
Road Vehicles	0.70	0.41	0.49
United States	1.28	0.98	1.04
Japan	1.83	2.41	2.14
Metalworking machinery	2.03	0.75	0.50
United States	1.07	0.99	0.84
Japan	0.53	1.36	1.69
Iron and Steel	0.12	0.16	0.25
United States	0.24	0.22	0.19
Japan	2.03	1.38	0.80
Telecom & sound record. & reprod	0.15	0.16	0.14
United States	0.64	0.62	0.51
Japan	4.20	3.97	3.65

n.e.s. = not elsewhere specified

* Ratios in country rows are exporting country's share of OECD imports of specified products divided by country's share of OECD imports of all manufactures. Industry ratios are U.S. ratio/Japan ratio.

Source: OECD. *Foreign Trade by Commodities, Series C. Part 1,11 1989*. Paris, OECD, 1989.

BARRIERS TO WHOLLY OWNED FOREIGN INVESTMENT

As for the other major factor affecting joint ventures, barriers to wholly-owned foreign investment exist in both countries. In Japan, the operative barriers are now those created by powerful industrial groups of which most large Japanese manufacturers are members. The best known among these groups are the *keiretsu*, some reconstituted from the prewar *zaibatsu*. Each *keiretsu* is a collection of firms, one from each of a number of industries, and centered on a lead bank which holds equity in as well as loan claims on group members. Member firms in turn hold equity positions in and forge strong supply links with one another.¹⁵ For foreign manufacturers wishing to enter Japan, equity cross-holdings deter the unfriendly takeover, but have not prevented independent new ventures. Even for new ventures, *keiretsu* networks may block market access when the market of a contemplated new venture consists mainly of *keiretsu* members. This has been a problem for producers of capital

¹⁵ For a description of the variety of industrial organizations in Japan, see: Caves, Richard E., and Masu Uekusa. *Industrial Organization*. In *Asia's New Giant*. p. 494-502.

goods, and intermediate goods such as industrial chemicals, but less of one for producers of consumer goods such as pharmaceuticals or cosmetics willing to establish their own distribution systems.

Even for producers of intermediate and capital goods, keiretsu-related barriers can and have been overcome by U.S. firms possessing a very strong competitive advantage at the time of their establishment—IBM in computers and Texas Instruments in semiconductors are good examples—or by firms who enter an industry through a joint venture and, when well established, strike out for themselves, as Dow Chemical did in 1981 when it withdrew from a longstanding venture with Asahi. At the other extreme, *keiretsu* marketing barriers would be irrelevant to a foreign firm too weak to compete independently in any case.

In the United States, barriers to foreign investment have gradually taken shape only in recent years. In fact, State governments continue to court foreign investments in manufactures for their contribution to local employment. Until the mid-1970s the Federal Government, mindful of the country's position as the world's largest direct investor, was scrupulously neutral in its treatment of foreign investors, barring them only from regulated industries and when contrary to national security. But, alarmed by the possibility of heavy OPEC country investments after the first oil shock in the early 1970s, the Administration took the precautionary step of creating, by executive order, an interagency Committee on Foreign Investment in the United States (CFIUS) with powers to monitor all inward investments and to review investments with major implications for U.S. interests but with no specific powers to bar foreign investments.¹⁶

In the 1980s, anti-Japanese public sentiment, originating as a response to the U.S. trade deficit with Japan, began to spill over into a wariness of Japanese investments and a certain amount of congressional concern which seemed likely to result in new legislative restraints. The reaction of Japanese multinationals to this sentiment and its potential was evident in 1987, when U.S. official expressions of dismay at a proposed Fujitsu purchase of Fairchild Semiconductor, a company with military contracts for certain high-tech items but already owned by another foreign company, prompted Fujitsu to withdraw its offer. In 1988, the Exon-Florio amendment to the Omnibus Trade and Competitiveness Act gave the President the power to bar foreign acquisitions of U.S. firms, including joint ventures which could lead to such acquisitions, if they are considered a threat to national security.

It seems quite likely that, in the 1980s, Japanese firms in steel and automobiles took U.S. sentiment into account in planning their U.S. investments. Since both industries are large and highly visible, with only modest long-term growth potential and already heavily protected by negotiated "voluntary restraints" on Japanese exports to the United States, it may have seemed all too probable that a large new wholly Japanese-owned manufacturing presence

¹⁶ For U.S. policy since the 1970s, see: Graham, Edward M., and Paul R. Krugman. *Foreign Direct Investment in the United States*. Washington, Institute for International Economics, 1989. p. 95-00.

in the United States, eating into the sales and profits of U.S. firms, would provoke a protective U.S. response. Thus Japanese reliance on joint ventures in these sectors was probably a choice of second-best, designed to soften the effect of their competitive thrust and thus fend off unfavorable U.S. reactions. While there was no move in Congress to promote or require joint ventures, the Japanese government and industry had long viewed requiring joint ventures as a protective device to cope with strong foreign investors. Thus strong Japanese companies wishing to enter the United States may have assumed that similar attitudes would take hold in the United States.

Steel companies relied almost exclusively on joint ventures in their major investments, but only after several failed attempts at friendly acquisitions of existing steel plants in California and Michigan.¹⁷ (Some have subsequently moved toward controlling equity positions.) In automobiles, the joint venture proportion is rising and is expected to account for half of Japan's U.S. affiliate assets by the early 1990s.

JOINT VENTURES IN MAJOR INDUSTRIES

To judge the relative strength of comparative advantage in trade and barriers to wholly-owned investment in motivating U.S.-Japan joint manufacturing ventures, one must look more closely at the experience in major industries. Table 2 summarizes the state of affairs in 1987 in the twelve industries for which we have roughly comparable investment and trade data. These large samples include an estimated two-thirds of Japanese companies' U.S. manufacturing affiliate assets and three-fourths of U.S. companies' Japanese manufacturing affiliate assets and, in terms of prevalence of joint ventures, closely resemble the universes from which they are drawn. The table groups the industries according to the relative strength of the two countries' comparative advantage and shows the prevalence of joint ventures in each industry, and the presence of barriers to wholly foreign-owned investments. Because 1988-1989 was a period of heavy Japanese investment in U.S. manufacturing, the discussion that follows refers to some large joint ventures not reflected in the table.¹⁸

As one would expect, in host country industries having a weak position in world markets relative to the foreign investor, one finds a large proportion of affiliate assets in joint ventures only in the presence of barriers to majority or wholly foreign-owned affiliates, since the stronger foreigners would presumably otherwise avoid joint ventures. In Japan, we find joint ventures of this sort in industrial chemicals, where they account for 86 percent of U.S. firms' affiliate assets. Some joint ventures date from the 1960s or before while others have been formed in the 1980s. Roughly half of all major U.S. and Japanese chemical firms are involved, and the present emphasis is on fibers and resins developed by the U.S. partners.

¹⁷ Nippon Kokan/Rouge Steel. *The Economist*, July 31, 1982, p. 63.

¹⁸ Detailed information on companies not footnoted separately in this and the preceding section is derived from press accounts and company reports in Moody's Industrials and information provided in JEL reports. (See footnote 19.)

In the United States, the influence of the barriers created by a perceived threat of legislative restrictions in motivating joint ventures in autos and steel have already been described. It is estimated that about 40 percent of Japan's U.S. affiliate assets in 1987 were joint ventures. Those included in table 2 are: Toyota's with GM, Mitsubishi Motors with Chrysler, Mazda (25 percent owned by Ford) with Ford, and Isuzu (partly owned by GM) with Fuji Heavy Industries—with more to come. Major participants in current steel joint ventures are: Nippon Kokan with National Intergrupp; Nishin with Wheeling-Pittsburgh; Kawasaki with Armco; Sumitomo Metal with LTV; and Nippon Steel with Inland Steel.

In other host country industries, we find the three varieties of voluntary joint ventures described earlier. In host country industries with strong comparative advantage, we find joint ventures involving smaller and weaker members with stronger members of the same but weaker foreign industry. In Japan, the prime example is in automobiles: GM's investment in Isuzu and Chrysler's joint venture with Mitsubishi Heavy Industry in Mitsubishi Motors, both initiated in 1970; and Ford's investment in Mazda in 1979. The three relatively small Japanese firms gained financial assistance needed at the time and an assured place in U.S. markets, while the big three U.S. companies gained a modest entry into the domestic Japanese market (denied them earlier, when it would have been more useful), a ready source of small cars for sale in the United States and other markets, and potential access to Japanese production methods.

In the United States, the best example is in the computer industry. In 1973, Fujitsu, a strong member of the still relatively weak Japanese computer industry, acquired a minority position in Amdahl, a small but innovative and striving member of the strong U.S. computer industry. Fujitsu gained U.S. technology and a U.S. outlet for sale of its own machines built with the help of that technology, and Amdahl gained financial support and production skills.

Voluntary joint ventures between firms evenly matched but with complementary strengths and weaknesses include some long-standing joint ventures in industrial and business machinery in Japan. Some were established at a time when the U.S. industry members were much stronger than Japan's and joint ventures were imposed by the presence of barriers, no doubt contributing to the growth and increased competitiveness of their Japanese partners. But those early ventures that survive—for example, Caterpillar's with Mitsubishi Heavy Industries—probably owe their longevity to complementary current strengths and weaknesses of the two partners.

In addition, numerous new voluntary joint ventures between competitive firms have appeared in the past few years, some too recently to be reflected in table 2. In the United States, notable examples are Fanuc's with GM in factory automation machinery and with GE in factory automation control systems, NEC's with Honeywell and the French firm Bull in computers, and in 1988 Komatsu's with Dresser Industries in a construction machinery venture aspiring to challenge Caterpillar's supremacy in that industry. In Japan, the largest and most promising (started production in 1988) is the Motorola-Toshiba joint venture in manufacturing microprocessors (in which Motorola excels) and large memory chips (in

which Toshiba excels). Another, announced in 1989, is IBM's first manufacturing joint venture in Japan, also with Toshiba, to produce large, high-resolution liquid color displays for computers—from which IBM seeks to gain new production skills.

Examples of the third type of voluntary joint venture, diversification by large firms from mature industries into growth industries, are Kawasaki Steel with LSI Logic and NMB (a big machinery company) with National Semiconductor—both producing in Japan. In addition, Texas Instruments, already a significant producer of semiconductors in Japan, will expand its manufacturing capacity there through a joint venture with Kobe Steel, which is seeking to diversify into semiconductors.

Table 2. JOINT VENTURES IN U.S.-JAPAN DIRECT INVESTMENT IN MANUFACTURES IN 1987 AND CONTRIBUTING INFLUENCES

Industry Group	U.S. Companies' Affiliate Assets in Japan			Japanese Companies' Affiliate Assets in U.S.		
	% of Affiliate assets	Importance of Joint Ventures % ¹	Barriers to 100% Ownership	% of Affiliate assets	Importance of Joint Ventures %	Barriers to 100% Ownership
Stronger U.S. Comparative Advantage						
Chemicals	19.8	52.3				
Pharmaceuticals	6.3	10.2		0.6	56.3	
Soaps, cleaners, toilet goods	1.7	0.8		0.1	0.0	
Industrial & other chemicals	11.8	85.9	K	8.2	8.8	
U.S. and Japan Broadly Competitive						
Machinery (except electrical)	15.1	² 35.1	K			
Office (incl computers)	³ 9.0		K	16.4	76.3	
Industrial (except metalworking)	³ 6.1		K	13.5	37.2	
Electric & electronic equipment	7.7	65.7	K			
Electronic components and accessories	5.3		K	2.1	17.8	
	2.4			3.5	21.2	
Stronger Japanese Comparative Advantage						
Road Motor Vehicles and parts	39.9	100.0		10.4	41.1	T
Metalworking machinery	(⁴)			2.4	4.7	
Primary metals, ferrous	² 0.2			7.3	88.6	T
Radio, TV & communication equip	(⁴)			2.8	4.6	
Total of Above	82.6	² 73.5		67.3	45.6	
Memorandum:						
Total Manufacturing Affiliate Assets	100.0	73.1		100.0	39.2	
(in billions of dollars)	\$52.2			\$31.2		

¹ Affiliates owned 50 percent or less by U.S. parent.

² In 1986.

³ Estimated.

⁴ Included above.

K = Barriers imposed by keiretsu and other groups of industrial firms linked by intra-group equity holdings and supply relationships, which discriminate against wholly-owned foreign companies.

T = Threat of legislative restrictions on Japanese investments damaging to large mature domestic industries.

Sources: For U.S. companies' Japanese affiliates: U.S. Department of Commerce, Bureau of Economic Analysis; and, for Japanese companies' U.S. affiliates: author's estimates based on data from U.S. Department of Commerce and Japan Economic Institute. (See appendix.)

POTENTIAL GAINS FROM JOINT VENTURES

If joint ventures in manufacturing tend to speed the dissemination of technology and production techniques from one country to another, what about direction? Is the current flow of technology, production and management expertise primarily from the United States to Japan or from Japan to the United States? This would

seem to depend on whether joint ventures are found mainly in industries where the United States and U.S. firms have a comparative advantage or the reverse.

The industry distribution of joint venture manufacturing affiliate assets in 1987 in the large sample analyzed here, shown in table 3, indicates that industries in which Japan had a decidedly stronger comparative advantage account for the largest share of joint venture assets—65 percent in Japan and 36 percent in the United States—closely followed by industries in which U.S. and Japanese firms are now broadly competitive, while a distinct minority of joint venture assets are in industries in which the U.S. comparative advantage is decidedly stronger. The big joint ventures announced since 1987 have been in industries in which the two countries are broadly competitive. Thus it seems likely that, on balance, existing joint ventures in manufacturing provide more opportunities for the transfer of technology and management skills from Japan to the United States than from the United States to Japan.

Table 3. THE INDUSTRY DISTRIBUTION OF SELECTED U.S.-JAPAN MANUFACTURING JOINT VENTURES IN 1987

(Percent of joint venture assets in samples)

Industry Group and Strength of Country Comparative Advantage	In Japan	In U.S.
Stronger U.S. Comparative Advantage.....	17.62	3.45
Chemicals.....		
Pharmaceuticals.....	1.05	1.10
Soaps, cleaners, toilet goods.....	0.02	
Industrial & other chemicals.....	16.55	2.35
U.S. and Japan Broadly Competitive.....	16.91	60.77
Machinery (except electrical).....	8.65	
Office (incl computers).....		40.77
Industrial (except metalworking).....		16.36
Electric & electronic eqpt.....	8.26	
Electronic components and accessories.....		1.22
Other (except Radio, TV etc).....		2.42
Stronger Japanese Comparative Advantage.....	65.47	35.79
Road Motor Vehicles and parts.....	65.14	13.93
Metalworking machinery.....		0.37
Primary metals, ferrous.....	0.33	21.07
Radio, TV & communication equip.....		0.42
Total of above.....	100.00	100.00

Sources: Same as table 2.

However, were this analysis extended back into the early post-war years and to other forms of cooperation between U.S. and Japanese manufacturers, the picture could look quite different. It has already been noted that the flow of intangible assets in machinery joint ventures was formerly more tilted to Japan than it now is. Indeed, the absence of full-fledged joint manufacturing ventures in areas of U.S. superiority, such as supercomputers and aircraft, may reflect a reluctance of U.S. companies to repeat that earlier experience. Moreover in those early years, technology transfers from the United States to Japan greatly outweighed direct investment. Even today, technology transfers outside incorporated joint ventures—for

example the joint U.S.-Japan development and manufacture of the FSX fighter for Japan—remain extremely important.

Returning to incorporated joint manufacturing ventures, Japanese firms seem to have been faster than U.S. firms to exploit their learning opportunities. In the 1960s and 1970s, in joint ventures characterized by U.S. comparative advantage—chemicals, and early ventures in machinery—Japanese partners were quick to exploit their access to technology. But in joint ventures in areas of Japanese advantage, mostly small cars in the 1970s, U.S. auto companies may have regarded the Japanese success as specific to small cars and to have underestimated the potential for applying Japanese production methods to the larger U.S. cars. But in the 1980s, U.S. attitudes seem to have changed. After Japanese auto producers had demonstrated that their production skills were applicable to a broad range of autos, their U.S. partners applied themselves to exploiting the learning potential inherent in those ventures. In the case of steel joint ventures of the 1980s, one U.S. partner, National Intergroup, may have regarded its joint venture as a useful method of withdrawing from the steel industry. But others—for example, LTV, Inland, and Armco—have described their motivation in terms of opportunities to learn Japanese production methods and to obtain new technology and equipment, as well as to boost their sales of steel to Japanese auto companies in the United States.

Moreover, in the growing portion of joint venture assets formed by U.S. and Japanese companies at a time when they were broadly competitive, there has been a brisk two-way exchange involving production and management skills and technology. In one of the largest thus far, the Motorola-Toshiba joint venture has permitted Motorola to resume production of DRAM memory chips, not only in its joint manufacturing venture in Japan but also independently using Toshiba technology in the United States. Motorola, like many other U.S. firms, had abandoned DRAM production in the face of fierce price-cutting competition and superior Japanese production methods, leading many U.S. observers to bemoan the growing U.S. dependence on Japan for this crucial computer component. Motorola's award-winning production methods and quality controls in a number of areas may also owe something to its Japanese joint venture experience. Toshiba, for its part, has gained new technology enormously helpful in its competition with other Japanese and U.S. chipmakers. One would expect the balance of advantage, if any, to depend on the energy with which the two firms exploit their gains.

CONCLUSIONS

As long as U.S. and Japanese firms find that they can acquire valuable technology, managerial and production skills through joint ventures, they will continue to pursue them. Since current joint ventures provide as great or greater learning opportunities for U.S. firms as for the Japanese, they would appear to be more useful than threatening to the United States. However, this currently favorable balance of advantage could be considerably altered were strong U.S. industries, especially producers of aircraft, to opt for full-fledged joint ventures with Japanese companies. Like other

forms of competition, joint ventures no doubt require constant vigilance on the part of both partners.

APPENDIX. JAPANESE FIRMS' U.S. MANUFACTURING AFFILIATE ASSETS

The Department of Commerce has provided comprehensive data on *Foreign Direct Investment in the United States* in three benchmark studies (1977, 1982, and 1987) interspersed with sample study updates for intervening years. Data for all foreign companies' nonbanking affiliates include affiliate assets and employment reported separately by country of the beneficial foreign owner and 3-digit SITC industry except where this detail would reveal information on individual companies. Unfortunately, however, data are collected at the enterprise level and classified according to the industry in which most sales are reported. For Japan this procedure greatly understates their companies' U.S. affiliate assets in manufacturing, which Commerce reports as \$14.7 billion in 1987, and overstates affiliate assets in wholesaling, reported by Commerce as \$45.5 billion. One sign of the problem is that "wholesalers" reported property, plant and equipment of \$7.5 billion, nearly as much as the \$9.8 billion reported by "manufacturers."

To correct this problem, we have estimated Japanese companies' U.S. affiliate assets in manufacturing by drawing on the Japan Economic Institute's annual surveys, *Japan's Expanding U.S. Manufacturing Presence*¹⁹ which provide reports on manufacturing establishments, by 4-digit SITC industry groups. For each establishment, the surveys report the names of the Japanese and U.S. parent companies and the percentage equity ownership of each parent, the number of employees, and the year that the plant was opened or acquired. Our estimates are derived by multiplying Commerce data on affiliate assets in 3-digit SITC groups (or the finest breakdown available) by the ratio of JEI reported employment to Commerce reported employment. For 1987, this adjustment roughly doubled the Commerce data on Japanese companies affiliate assets in manufacturing. The joint venture ratios by industry are derived from the JEI data.

Since Commerce data on U.S. companies foreign affiliates is also reported for enterprises rather than establishments, there is always the possibility that U.S. investments in manufactures are also understated. However, since the reports show U.S. firms Japanese affiliate assets to be only about one-fifth as large as their assets in manufactures, the understatement is probably not large.

¹⁹ Macknight, Susan. *Japan's Expanding U.S. Manufacturing Presence, 1986 Benchmark Survey*. Washington, Japan Economic Institute, December 1987; and, *1987 Update*, Washington, JEI, 1988.

IV. HUMAN RESOURCES

JAPAN'S CHANGING POPULATION STRUCTURE: PROJECTIONS AND IMPLICATIONS

By Wayne M. Morrison ¹

CONTENTS

	Page
Overview.....	223
Japan's Future Demographic Changes.....	223
Implications for Japan's Economy.....	224

OVERVIEW

Over the next several decades, industrialized nations are expected to experience a rapid "graying" of their population, as fertility rates decrease and life expectancies rise. Nowhere is this aging phenomenon expected to occur as rapidly or become as acute as in Japan. Since 1920, Japan has had the youngest population (i.e., the lowest ratio of 65s and over to the general population) of any industrialized nation. However, by the year 2025, it is predicted that Japan's population will become one of the oldest in the industrialized world. The rapid change in the demographics of Japan's population could have major effects on Japan's economy in the future. Japan's response to demographic changes could provide valuable lessons for other nations which also will experience a rapid aging of their populations in the decades ahead. Drawing upon population projections of Japan made by the U.S. Bureau of the Census, and other sources, an assessment is made herein of Japan's rapidly changing demographics.

JAPAN'S FUTURE DEMOGRAPHIC CHANGES

Japan, in the years ahead, is predicted to experience major changes in the growth and composition of its population. Japan's population growth rate, which began to slow during the 1970s, is expected to decelerate rapidly in the years ahead, and to result in a negative growth rate after the year 2005. By this time, the population is projected to peak at 128.5 million and begin to experience a net decrease in forthcoming years. By the year 2050, the popula-

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tion is projected to drop to 103.7 million—roughly the 1969 population level (see figure 1).

While the overall population in Japan is projected to decrease over the coming decades, the composition in terms of ratio of the elderly (age 65 and over) to the general population is projected to rise dramatically. There are two main factors which are causing this demographic transition. First, the average life expectancy in Japan, which was only 50 years for men and 54 years for women in 1947 has become the highest in the world—76.5 years for males and 82.2 for females in 1987. Second, the birth rate, which grew sharply following the end of World War II, slowed significantly by the mid-1950s, creating a “bulge” in the Japanese age structure. (In contrast, the birth rate growth in the United States, Great Britain, and West Germany did not level off until after 1960.) Japan’s crude birth rate (births per 1,000 population) fell from 28.1 in 1950 to 11.1 in 1987. By the year 2000, this figure is projected to drop to 10.7, and to 8.3 by 2050. As a result of these factors, it is predicted that Japan will experience a rapid aging of its population in the years ahead.

The aging factor is expected to occur more rapidly and be more pronounced in Japan than most other industrialized countries. The International Monetary Fund (IMF) projects that by the year 2005, Japan will have the highest ratio of elderly to the general population of any leading industrial country. By the year 2025, Japan’s elderly ratio will be surpassed by that of West Germany, but will remain one of the highest among industrialized nations. Japan’s elderly population is currently growing nearly twice as fast as West Germany’s and six times faster than that in the United States.² According to U.S. Bureau of the Census projections, Japan’s elderly population will double within 30 years and nearly triple within 50 years. In 1987, 10.8 percent of Japan’s population (13.2 million) was 65 or over. This figure is projected to grow to 16.5 percent (21.0 million) by the year 2000, 25.7 percent (31.9 million) by the year 2020, and 30.3 percent (34.0 million) by the year 2040 (see figure 2).

The United States, on the other hand, is expected to experience a much more gradual aging of the population over the next few decades. Over the next 20 years, the U.S. elderly population is projected to rise more slowly than it has in many decades. However, from 2010 to 2030 the number of elderly people is projected to increase substantially, but then will level off by 2040. In 1987, 12.2 percent of the U.S. population was 65 or over. By the year 2000 this figure is expected to grow to 13.0 percent, 17.7 percent in 2020, and 22.6 percent in 2040.³

IMPLICATIONS FOR JAPAN’S ECONOMY

The rapid aging of Japan’s population is likely to result in major changes in the Japanese economy and government fiscal structure. First, the increase in the proportion of the elderly population, resulting from the retirement of the baby boom generation, is likely to increase the demand for government social services and benefits

² Richman, Louis. *The Coming World Labor Shortage*. *Fortune*, April 9, 1990, p. 71.

³ U.S. Department of Commerce. Bureau of the Census. *Projections of the Population of the United States by Age, Sex, and Race: 1988 to 2080*. Series P-25, No. 1018, January 1989.

FIGURE 1. Japanese Population: Actual and Projections, 1950-2050 (millions)

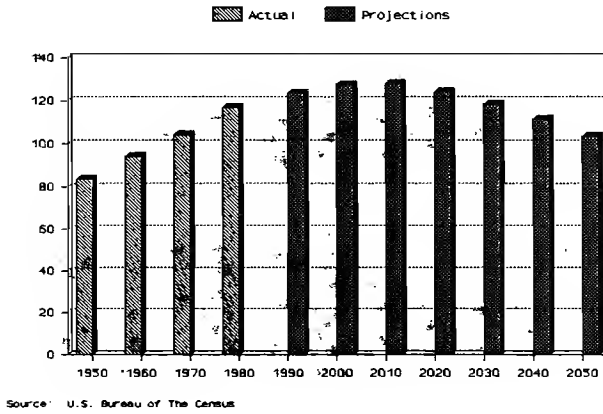
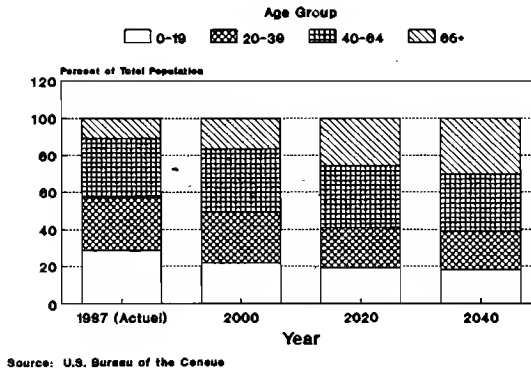


FIGURE 2. Age Composition of Japanese Population: 1987, 2000, 2020, 2040 Actual and Projections (%)



such as medical insurance, pensions, and other basic support for old age. This is especially evident in view of the projections of the population 80 years or over in the coming years. The number of Japanese elderly citizens over the age of 80 is expected to rise dramatically, from 2.4 million in 1987, to 4.3 million in the year 2000, to 9.3 million in 2020, and to 12.3 million by the year 2040.

In 1980, Japan had one of the lowest ratios of government social expenditure to gross domestic product (GDP) among the seven leading industrialized nations: 15.4 percent—less than half the West German level. However, it is projected that the aging of the population will result in a significant increase in this ratio. The IMF estimates that government social expenditure levels will increase to 27 percent of GDP by 2025 (the U.S. ratio is predicted to rise to 19.4 percent by 2025). Japanese Government pensions are expected to rise sharply from 4.2 percent of GDP in 1980 to 13.4 percent by 2025 (compared to 6.3 percent and 6.9 percent, respectively, for the United States). While the IMF projects that the Japanese ratio of social expenditures to GDP will remain lower in the year 2025 than those in France (35 percent), Germany (39 percent), and Italy (34.7 percent), the rate of increase in social expenditures is expected to rise more rapidly than in these countries. IMF projections show that government social expenditures in Japan will rise almost 40 percent over their present level by 2000 and 76 percent by 2025.⁴

Financing new and expanded government social programs may require substantial revisions in Japan's fiscal structure and, due to the expected rapid growth in the elderly population in the years ahead, such revisions may be required over a relatively short period of time and could be extensive. As the proportion of the elderly population increases, so will the elderly dependency ratio (i.e., the ratio of elderly 65 and over to each 100 members of the population of working age, generally ages 15 to 64). This means that in the future, as the ratio of elderly increases, there will be fewer workers per elderly citizen to finance pensions, retirement accounts, and social services, etc. In 1987, the elderly dependency ratio was 15.7 (that is, there were 15.7 elderly people 65 or over for each 100 people of working age 15–64.) By the year 2000, this figure is expected to increase to 24.4, then surge to 42.2 in 2020, and to 53.8 by the year 2040. In other words, in 1987, there were nearly six workers to support each elderly person, but by 2040 there will be fewer than two.

The sharp increase in Japan's elderly population may raise new public policy considerations over how national output will be distributed between working and nonworking members of the population and the role the public sector should play in such distribution. For example, Japan currently enjoys one of the lowest tax burdens among industrialized countries. However, the rapid aging of the population may induce the Japanese government to substantially raise social security taxes, income taxes, etc. in order to fund public pension programs and to increase expenditures for social programs. The Japanese government is already projecting that social security taxes will rise from 12.4 percent of wages (excluding

⁴ International Monetary Fund. *Ageing and Social Expenditure in the Major Industrialized Countries, 1980–2025*. Washington, September 1986. p. 8.

bonuses) in 1985 to 28.9 percent in the year 2020.⁵ In general, higher taxes could negatively affect future employment and economic growth.

The rapid aging of Japan's population also has several major implications for its labor force. Japan's labor force participation of its citizens 65 and over is one of the highest among industrialized nations.⁶ In recent years, however, labor force participation by the elderly has dropped sharply (as it has for other industrialized nations). In 1970, 49.4 percent of all Japanese males 65 or over, (17.9 percent of females) were employed. In 1985, this ratio decreased to 37.0 percent for males and 15.5 percent for females.⁷ Much of this drop can be attributed to improvements in private sector retirement plans, the expansion of public sector pension programs, and government policies to encourage early retirement. However, as the birth rate continues to drop and the elderly dependency ratio increases, Japan is likely to face a labor shortage in the years ahead. As a result, Japanese firms may need to change existing retirement policies in order to encourage longer term employment of its workers (i.e., past the mandatory retirement age of 55), to retrain and educate older workers, and to provide greater flexibility and part-time jobs.⁸ Because wage levels in Japan are strongly determined by the seniority system, the aging of the workforce could put upward pressure on wages in the future. This in turn may put pressure on Japanese firms to relocate overseas (where wages are lower) or to boost capital investment in order to increase labor productivity.⁹ It also will put pressure on the government to allow more immigrants or guest workers to enter Japan.

Finally, some analysts project that the aging of Japan's population in the near future will result in a lower savings level. A 1985 Japanese Government Economic White Paper predicted that Japan's household saving rate will decline by as much as one-half during the next 40 years.¹⁰ The elderly as a whole generally are not net savers but instead live off their savings after retirement. Japanese elderly do not always fit this pattern, as many continue to save well past retirement. However, this may change in the near future as government pensions become a greater source of post-retirement income for the elderly, and as the wealth of retiring workers continues to rise. In addition, the large increase in the elderly population is likely to affect consumption expenditures and patterns of the population, where consumer demand will increasingly

⁵ Jones, Randall S. *The Economic Implications of Japan's Aging Population*. *Asian Survey*, September 1988, p. 963.

⁶ Many Japanese firms currently maintain mandatory retirement policies, generally at the age of 55 in which Japanese workers are usually given a lump-sum payment or receive a private or government pension, both of which are relatively minor compensation compared to those provided in other industrialized countries. Due largely to financial uncertainties, many elderly in Japan have traditionally either sought to reenter the job market, or have worked beyond retirement age, mainly in low-skilled jobs such as agriculture and the retail distribution system.

⁷ Hagemann, Robert P., and Nicoletti, Giuseppe. *Population Ageing: Economic Effects and Some Policy Implications For Financing Public Pensions*. OECD Economic Studies, Spring 1989. Paris, 1989, p. 79.

⁸ Holden, Constance. *Adjusting to an Aging Population*. *Science*, May 15, 1987, p. 773.

⁹ On the other hand, extending employment opportunities for elderly citizens may itself boost labor productivity since older workers possess skills and experience and often require less training than new workers.

¹⁰ Jones, *The Economic Implications of Japan's Aging Population*, p. 961.

be directed toward businesses providing services and goods for people 65 and over.¹¹

Table 1. JAPANESE POPULATION: ACTUAL AND PROJECTIONS,* 1950-2050

(Millions)	
Year	Population
1950.....	83.5
1960.....	94.1
1970.....	104.3
1980.....	116.8
1990.....	123.6
2000.....	127.5
2010.....	128.1
2020.....	124.2
2030.....	118.3
2040.....	111.3
2050.....	103.7

* Data for 1950-1980 are actual; all other are projections.

Source: U.S. Department of Commerce, Bureau of the Census.

Table 2. AGE COMPOSITION OF JAPANESE POPULATION, 1987, 2000, 2020, 2040

(Percent)				
Year	Actual	Projection		
	1987	2000	2020	2040
Age Group				
0-19.....	28.3	21.6	18.8	18.0
20-39.....	29.0	27.8	22.0	20.9
40-64.....	31.9	34.1	33.5	30.8
65+.....	10.8	16.5	25.7	30.3

Source: U.S. Department of Commerce, Bureau of the Census.

¹¹ *The Economist*, October 7, 1989, p. 81.

SOCIAL SECURITY SYSTEMS IN JAPAN

By Robert L. Clark ¹

CONTENTS

	Page
Summary	229
Development of Social Security in Japan	230
National Pension Plan	233
Financing the National Pension Plan	234
Determination of the Basic Benefit	234
Employees' Pension Insurance	235
Financing Employees' Pension Insurance	235
Determination of Employees' Pension Insurance Benefits	236
Retirement Age and Earnings Test	238
Problems and Prospects	238

SUMMARY

The first component of the Japanese Social Security system was introduced in the 1940s to cover employees in certain private sector jobs. Over the next twenty years, additional programs were established to cover other private and public employees along with self-employed workers. By 1962, most workers in Japan were covered by one of six different Social Security systems.

The aging of the Japanese population increased the cost of providing retirement benefits, and in 1985, substantial changes in the Social Security programs were initiated. The 1985 reforms revamped the National Pension Plan which previously had covered only self-employed workers. The new National Pension Plan covers all workers and their spouses. The retirement benefit from this Social Security program is a flat dollar amount per year of covered employment. Employees, both public and private, continue to be covered by an additional Social Security plan. Most private employees participate in the Employees' Pension Insurance program which provides an earnings-related retirement benefit. There are four other Social Security programs referred to as Mutual Aid Associations that cover public workers and private workers in some occupations.

In addition to restructuring the Social Security programs, the 1985 reforms modified the benefit formulas to substantially reduce

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future benefits and thus lower projected tax increases necessary to finance retirement benefits. An actuarial review of the Social Security programs in 1989 indicated that earlier projections had underestimated future costs. As a result, tax rates were sharply increased in 1990.

Population aging has required Japan to confront the same problems of financing Social Security that the United States has faced. Both countries have responded by raising taxes, lowering benefits and encouraging delayed retirement. While the United States program is currently building up large Social Security trust funds, the Social Security trust funds in Japan are being steadily drawn down. The projected payroll tax increases are a major concern of the Japanese government.

DEVELOPMENT OF SOCIAL SECURITY IN JAPAN

The Japanese Social Security system is composed of six different programs that provide retirement benefits. The National Pension Plan covers all workers (self-employed workers and employees) and their spouses. It pays a basic benefit to retirees that is determined by the number of years of participation. Most employees are also covered by an earnings-related retirement benefit plan. The largest of these is the Employees' Pension Insurance system which covers most private employees. Other employees are covered by Social Security plans for specific groups of workers. These plans include the National Public Service Mutual Aid Association, Local Public Service Mutual Aid Association, Private School Teachers and Employees' Mutual Aid Association, and Agricultural, Forestry and Fishery Institutions Employees' Mutual Aid Association. Table 1 provides an overview of these six programs which compose the Japanese Social Security system.

The Employees' Pension Insurance program was the first continuing Social Security program to be established in Japan. Adopted in 1941, this program covered only private employees in certain occupations. Other components of the Social Security system were instituted in the 1950s and 1960s, thereby extending coverage to most Japanese workers. The largest of these programs is the National Pension Plan, which was established in 1961. Initially, the National Pension covered only persons not included in other Social Security programs, primarily the self-employed.

The Pension Insurance Amendments of April 1985 fundamentally altered the Social Security system of Japan. The primary objectives of the amendments were the unification of the pension system, reduction of future benefit costs, and the establishment of pension rights for women.

Table 1. STATUTORY PENSION SCHEMES

Population Sector	Wage or salary earners					Others
	Private	Public		Private		
Name of the scheme	Employees' pension insurance ..	National public service M.A.A.	Local public service M.A.A.	Private school teachers and employees' M.A.A.	Agricultural, forestry and fishery institutions employees' M.A.A.	National pension
Year of enactment	1941-44	1958	1962	1953	1958	1959
Year of implementation	1944	1959	1962	1954	1959	1961
Persons insured	Employees in prescribed establishments.	Employees of the central government and of the national railway, etc.	Employees of local government of various levels.	Teachers and employees of privately established schools.	Employees of cooperative and allied bodies in agriculture, fishery.	All persons 20 to 60 except for students and pensioners
Administration	Social insurance agency	The federation of national public service M.A.A.	The federation of local public service M.A.A.	The M.A.A.	The M.A.A.	National government

M.A.A. = Mutual Aid Association.

Source: Japan Foundation for Research and Development of Pension Schemes. *National Systems of Old-Age, Disability and Survivors' Benefits in Japan*. Tokyo, 1986. p. 6 and updated information.

These amendments transformed the National Pension from a Social Security plan covering only self-employed workers into a comprehensive national retirement plan for all workers and their dependents. The National Pension now provides a flat benefit per year of contribution to all insured persons. This benefit is typically referred to as the basic retirement benefit. The Employees' Pension Insurance program, along with the four Mutual Aid Associations, provide earnings-related benefits to covered workers in addition to the basic benefit from the National Pension. Since 1985, employees have both the basic benefit from the National Pension and an earnings-related benefit from their specific Social Security plan. Self-employed workers and dependents are covered only by the National Pension.

The second objective of the amendments was to re-establish the Social Security systems on a sound financial basis for the long term. Combined employer and employee tax rates for the Employees' Pension Insurance plan increased from 3.5 percent of covered payroll in 1960 to 12.4 percent in 1986. With no changes in the system, the tax rates were projected to increase to 16.8 percent of covered payroll in 2000, to 24.9 percent in 2010 and further to 33.6 percent in 2020 (see table 2). The cost of the National Pension had also risen sharply, increasing from a contribution of 100 yen per month in 1965 to 6,800 yen per month in 1986. The monthly contribution in 1984 prices was projected to increase to ¥15,000 in 2000 and ¥19,500 in 2020.

To moderate these projected cost increases, the amendments altered the benefit formula to lower future benefits. A discussion of these benefit changes is contained in the subsequent two sections. Based on the new lower benefits, future costs were curtailed. Instead of the Employees' Pension Insurance tax rate increasing to 33.6 percent of covered payroll in 2020, the tax rate was projected to rise to 28.6 percent, while the monthly contribution to the National Pension Plan was projected to increase to ¥13,000 in 1984 prices instead of ¥19,500. Even with these reforms, the cost of the Japanese Social Security system was projected to double in less than 35 years.

The third objective of the 1985 Social Security amendments was achieved by granting significant new coverage to women. Prior to these reforms, divorced women were often left without Social Security benefits. Under the new National Pension, all housewives are participants in Social Security and will accumulate benefit credits in their own names.² The changes in the benefit formulas increased the size of the basic benefit from the National Pension relative to earnings-related benefits. This increased the importance of the wife's pension in the determination of family retirement income.

By law, the Social Security programs must have an actuarial review at least every five years. Such a review was conducted in 1989. New projections showed future Social Security costs rising

² Whether dependent spouses of self-employed workers actually accumulate credits toward a retirement benefit depends on their paying the monthly contribution to the National Pension Plan. Several leading Japanese pension experts believe that many women are opting not to make these payments.

Table 2. TRENDS AND PROJECTIONS OF PARTICIPANTS, BENEFICIARIES, AND CONTRIBUTION RATES:
EMPLOYEES' PENSION INSURANCE

Year	No. of participants (millions)	No. of beneficiaries (millions)	Beneficiaries participants (in percent)	Contribution rate, pre 1985 law* (in percent)	Contribution rate with 1985 reforms* (in percent)
1960.....	13.2	0.04	0.3	3.5	
1965.....	18.4	0.2	1.1	5.5	
1970.....	22.3	0.5	2.3	6.2	
1975.....	23.6	1.0	4.4	7.6	
1980.....	25.2	2.0	8.0	10.6	
Projected					
1986.....	26.9	3.4	12.7	12.4	12.4
1990.....	27.9	4.6	16.5	12.4	12.4
2000.....	29.4	7.7	26.1	16.8	16.0
2010.....	28.5	10.8	38.0	24.9	23.4
2020.....	28.9	12.6	43.5	33.6	28.4
2030.....	28.2	12.8	45.4	38.8	28.9

* Projected contribution rates allow trust funds to decline to approximately one year's expenditures in contrast to the seven years' in trust fund in 1986. The trust fund stabilizes at around one year's expenditures.

Source: Japan, Ministry of Health and Welfare. *Outline of recent Japanese Policy on Pensions: The Background and Measures for Reform*. Tokyo, 1985. p. 3436.

more rapidly than anticipated. The combined tax rates for the Employees' Pension Insurance program were projected to 31.5 percent of covered payroll in 2020 instead of the 28.4 percent that had been projected just four years earlier. This increase of more than three percentage points was primarily due to a more rapid pace of population aging than had been anticipated in the earlier projections. Similar higher costs were projected for the National Pension.

In response to these increased projected costs, the government proposed to raise contribution rates for the Employees' Pension Insurance to 14.6 percent of covered payroll, and to increase monthly contributions to the National Pension to ¥8,400. The bill was modified in the Diet to increase the tax rate for the Employee's Pension Insurance program to 14.3 percent in 1990 and to 14.5 percent in 1991. These tax rates are higher than those in the United States for the Old Age and Survivors program, and the projected increase in Japan is higher than projected future taxes in the United States. The high and increasing cost of Social Security remains a major public policy issue in Japan.

NATIONAL PENSION PLAN

Legislation establishing the National Pension Plan was enacted in 1959 and the National Pension was introduced in 1961. Since the 1985 amendments, the National Pension insures all persons between the ages of 20 and 60 except for students and old age pensioners, who are excluded from compulsory coverage. Revenues for the National Pension Plan are derived from self-employed worker contributions, employer contributions for employees and government contributions. Full benefits may be started at age 65 and reduced early retirement benefits can be received beginning at age 60. The early retirement benefit at age 60 is 58 percent of the benefit at age 65.

FINANCING THE NATIONAL PENSION PLAN

Participants in the National Pension are divided into three groups: insured persons covered only by the National Pension, employees who are covered by the National Pension and another of the statutory components of Social Security, and dependent spouses of insured employees who do not work for pay. All persons who are not employees or their spouses are in the first category. This group includes self-employed workers and unemployed workers, along with the spouses of these participants. All persons in this first category are required to make monthly Social Security contributions. In 1990, the monthly contribution is Y8,400. Monthly contributions must be made by the self-employed worker, disabled workers, and their spouses to an approved financial institution which then transmits the payments to the government.

Contributions for employees in group two are collected by their employer in conjunction with their earnings-related Social Security program. Contributions for dependent spouses of employees (group three participants in the National Pension) are covered by the contributions of the employees. Thus, the contributions for the earnings-related pensions cover both the National Pension and the earnings-related pension benefits. For example, the Employees' Pension Insurance system is responsible for the financing of the basic (National Pension) benefit for employees and their spouses.

The total cost of the basic benefit is calculated annually and is apportioned among the various Social Security plans based on the number of insured participants in the plan. In addition to these contributions on behalf of workers and their spouses, government subsidies are used to fund benefits. These subsidies are equal to one third of the contributions from persons in group one and one third of the contributions from workers by other Social Security programs as they relate to the basic benefit.

DETERMINATION OF THE BASIC BENEFIT

The basic retirement benefit from the National Pension is a flat amount per month of contributory status. To determine the number of months included in the benefit formula, the following periods are used: periods during which contributions were paid into the National Pension (contribution-paid periods), periods during which the person was exempted from payment due to disability or while receiving means-tested benefits (contribution-exempt periods), periods during which the person was insured under one of the other components of the Social Security system (contribution-paid periods), and periods during which the person was a dependent spouse of an insured participant in one of the earnings-related plans (contribution-paid periods).

Prior to the 1985 amendments, the basic benefit of the National Pension Plan was equal to

$$\text{Monthly Benefit (in yen)} = 1,680 [A + (B/3)] / 12$$

where A is the number of months of contribution-paid status and B is the number of months of contribution-exempt status. This formula remains in effect for all persons born prior to April 2, 1926.

The 1985 amendments changed the benefit formula so that the basic monthly benefit in 1984 prices is determined by multiplying 1,250 (instead of 1,680) times the number of insured months. The new formula produces a maximum monthly benefit of ¥50,000 for a worker with 40 or more years of coverage. The generosity of the benefit is increased to reflect increases in the consumer price index. For persons retiring after October 1989, the maximum benefit is ¥55,500 per month.

Prior to the 1985 reforms, the Social Security system in Japan had not fully matured. The average number of insured years in the National Pension was 32. Under the old benefit formula, a person retiring with 32 years of coverage would receive a monthly benefit of ¥53,760 (¥1,680 times 32 years of coverage). A comparable worker retiring under the new benefit formula would only receive ¥40,000 per month (¥1,250 times 32 years of coverage). The immediate shift of benefit formulas would have resulted in a sharp reduction in benefits for persons retiring under the new formula. Therefore, the impact of the new formula is being gradually phased in, with the full reduction applying for persons born after 1940.

After benefits are received, they are automatically adjusted to changes in the cost of living whenever there is an increase of 5 percent or more in the national consumer price index. An increase of less than 5 percent per year is carried over until the cumulative rise in the consumer price index exceeds 5 percent.

EMPLOYEES' PENSION INSURANCE

The Employees' Pension Insurance program was established in 1941; however, full pension benefits were not to be paid for 20 years. The program initially covered only male, manual workers in private companies employing 10 or more workers. Coverage was extended in 1944 to include salaried employees, female workers and persons employed in firms with five or more workers.

All persons regularly employed in a covered firm are included in the Employees' Pension Insurance plan if they are under the age of 65. To be eligible for a retirement benefit, workers must have 25 years of insured coverage. Persons over the age of 65 can maintain insured status in order to achieve the minimum required years of coverage.

FINANCING EMPLOYEES' PENSION INSURANCE

The Employees' Pension Insurance program is financed by a payroll tax of 14.3 percent of covered payroll. Employers and employees each pay half of this tax. The tax rate is slightly lower for female workers, but it is being gradually increased so that in 1993 the tax will be the same as for men. As noted above, this tax pays for the worker's basic benefit, the earnings-related benefit, and the basic benefit for a dependent spouse.

The first half of table 2 shows the increase in the tax rate for this program. The rapid increase in the cost of the Employees' Pension Insurance program is primarily due to the aging of the population, as reflected in the increase in the ratio of beneficiaries to participants. This ratio rose from 1.1 beneficiaries per 100 participants in 1965 to 12.7 in 1986. During this same period, the tax rate was

increased from 5.5 percent to 10.6 percent. Despite this increase in the tax, trust fund reserves fell from 23.7 years of benefits in 1965 to 7.9 years in 1985.

Projections made in 1985 forecast that the number of beneficiaries per 100 would rise to 45.4 per 100 in 2030, requiring an increase in the tax rate from 12.4 percent in 1986 to 38.8 percent in 2030. The reduction in the benefit formula in 1985 lowered this projected cost to 28.9 percent. This higher tax was forecasted to be sufficient to maintain trust fund reserves at approximately one year's benefits.

The 1989 actuarial review of the program indicated that the continued aging of the population required even higher tax rates. Funding these future tax increases is an important problem facing Japan. Japan is aging more rapidly than the United States and will be required to raise Social Security taxes earlier than the United States and these increases will be higher than those required in the United States.

DETERMINATION OF EMPLOYEES' PENSION INSURANCE BENEFITS

Prior to the 1985 amendments, the Employees' Pension Insurance benefit was composed of a flat benefit and an earnings-related benefit. The benefit formula was

$$\text{Monthly Amount (in Yen)} = [2,400 * Y] + [.01 * E * Y]$$

where E is the average insured monthly earnings and Y is the number of insured years.

In 1985, this formula was substantially revised and coordinated with National Pension Plan. The flat benefit from the Employees' Pension Insurance program will gradually be replaced by the new lower National Pension benefit. Thus, the benefit per year of insured employment will be reduced from Y2,400 to Y1,250 in 1984 prices. The transitional period ends in 2006.

In addition, the earnings-related benefit was reduced by 25 percent. For persons reaching 60 in 1986, the earnings-related benefit was determined by multiplying 0.01 times the number of years of insured coverage times average insured monthly earnings. The benefit factor will be gradually lowered to 0.0075 in 2006.

The average monthly insured earnings is determined by using insured earnings during all insured years. When the retirement benefit is computed, past earnings are reevaluated to reflect increases in average wages. The factors used in this reassessment of earnings are revised at the regular actuarial review of the Employees' Pension Insurance system. Reviews must be conducted at least every five years.

The benefit formulas for the Employees' Pension Insurance program include the number of years of covered service. The pre-1985 formula was set to produce a relatively high replacement rate for those retiring with the average attainable coverage, which was 32 years in the mid-1980s. Table 3 shows the benefit for a married worker who earned the average wage in the nonagricultural sector throughout his career (an average monthly earnings of Y254,000), was covered by Employees' Pension Insurance for 32 years, and retired in 1986. His total benefit would be Y173,000 per month, or a replacement ratio of 68 percent.

With no change in the benefit formula, the replacement ratio for this married worker would have increased to about 83 percent as the average years of covered employment increased from 32 to 40. The 1985 changes to the benefit formula were aimed at stabilizing the replacement ratio as years of credited service increased. After the benefit formula changes are fully implemented and when average years of coverage have increased to 40, the replacement ratio for this worker will be 69 percent.

Table 3. CHANGE IN TOTAL SOCIAL SECURITY BENEFITS DUE TO 1985 PENSION REFORM: AVERAGE MARRIED RETIRED EMPLOYEE *

Pre Reform Monthly Benefit		
Total Benefit	(1) Earnings-related component (254,000 * .01 * 32 years)	Y81,300
	(2) Fixed-rate component (2,400 * 32)	Y76,800
	(3) Increment for wife	Y15,000
	Total benefit	Y173,000
	Replacement ratio: 68 percent	
Benefit When Changes Fully Implemented		
Total Benefit	(1) Earnings-related benefit (254,000 * .0075 * 40 years)	Y76,200
	(2) Basic benefit, worker	Y50,000
	(3) Basic benefit, wife	Y50,000
	Total benefit	Y176,200
	Replacement ratio: 69 percent	

* Benefits are in 1984 prices. The worker is assumed to have average earnings in both examples of Y254,000 per month. In 1985, the average worker had 32 years of credited service. When the changes in benefit are fully implemented, the average worker is expected to have 40 years of credited service.

Source: Japan. Ministry of Health and Welfare. *Health and Welfare in Japan*. Tokyo, 1988. p. 21.

These replacement ratios compare benefits to gross pre-retirement insured remuneration. Several adjustments are necessary to compare benefits to take-home earnings. First, insured remuneration does not include the bonuses that most Japanese workers receive. These bonuses typically represent 25 to 30 percent of annual earnings. Thus, retirement benefits for a married couple are more like 50 percent of the total earnings of the husband. Such a replacement ratio is slightly below that for the average married retiree in the United States.

A second adjustment is to compare retirement benefits to after-tax remuneration. If benefits are compared to after-tax earnings, the replacement ratio is somewhat higher. For example, assuming a total tax rate of 15 percent and a pre-tax replacement ratio of 69 percent, the after-tax replacement ratio is over 80 percent. If no changes had been made in the benefit formula, total benefits would have exceeded net earnings as gross replacement rates rose and increases in taxes reduced net pay. Even with the 1985 changes, net replacement ratios are expected to approach 100 percent in the future. The rise in the net replacement rate occurs due to the increase in taxes on earnings as the costs of Social Security increase.

RETIREMENT AGE AND EARNINGS TEST

Men are able to begin receiving their Employees' Pension Insurance benefit at age 60. Full benefits from the National Pension are not paid until age 65. The Employees' Pension Insurance system pays male workers retiring at age 60 a combined benefit equal to the earnings-related benefit plus the basic benefit until 65. The National Pension system begins to pay the basic benefit when the retired worker reaches 65.

Prior to the 1985 legislation, women were able to receive a benefit beginning at age 55. The amendments raise the pensionable age for women by one year every three calendar years until 2000. At that time, the pensionable age for women will be 60, the same age as for men. In 1989, the government proposed raising the age of full benefits to 65 for both men and women. This proposal was defeated in the Diet; however, this measure is expected to be reintroduced.

If a person who is receiving benefits continues to work, the combined benefit may still be paid, but at a reduced rate. The amount of the benefit reduction depends on earnings. The rate of reduction in the benefit is 20 percent if average remuneration is less than 95,000 yen, 50 percent if earnings are between Y95,000 and Y155,000, and 80 percent if earnings are between Y155,000 and Y210,000. The benefit is suspended if earnings are in excess of Y210,000.

PROBLEMS AND PROSPECTS

The 1985 amendments to the Japanese Social Security system transformed this system of separate pension plans into an integrated system with a basic benefit provided by the National Pension to all workers combined with an earnings-related benefit for employees through the Employees' Pension Insurance program. Differences based on gender are gradually being phased out, and the 1985 amendments increased the likelihood that married women will receive a retirement benefit.

Although direct comparisons are difficult, the replacement rate for a retired employee seems somewhat lower than for a comparable worker in the United States. The replacement rate based on insured pre-tax earnings for a married retiree covered by the Employees' Pension Insurance program is 69 percent of the retiree's pre-retirement earnings. Adjusting for the uninsured component of earnings (bonuses) lowers this to about 50 percent. In the United States, a worker with average earnings would receive benefits at age 65 equal to 42 percent of average earnings. If married and the wife, who is also 65 or older, receives a spouse benefit, the family replacement rate rises to 63 percent.

These comparisons indicate that the typical Japanese retired employee with a nonworking spouse receives a slightly lower replacement rate from Social Security than a retiree in the United States. These replacement rates for Japan refer only to persons covered by both the National Pension and the Employees' Pension Insurance system. Self-employed workers are covered only by the National Pension and only receive the basic benefit for the worker and his

spouse. The replacement rate for these workers depends on their pre-retirement earnings.

The most pressing problem for Social Security in Japan is the rapid increase in the cost of this program. Japan is the most rapidly aging country in the world with the highest life expectancy. Despite recent increases in the payroll tax, Japan still faces the prospect of a large and steady increase in the future. Official projects now predict a combined payroll tax rate for the Employees' Pension Insurance program of 31.5 percent of covered payroll in 2020 compared to the current rate of 14.3 percent. Projections by private researchers indicate that the government projections may significantly underestimate future costs.

Recent studies in Japan have expressed concern about the high projected tax rates for Social Security. These higher tax rates will increase labor costs of production. The higher taxes and the decline in the Social Security trust funds may have an adverse effect on the national savings rate and the rate of economic growth. The response of Japan to these issues merits careful consideration by policymakers in the United States.

In order to further reduce future costs of Social Security, the Japanese government has encouraged firms to hire older workers and to raise the age of mandatory retirement. In addition, proposals have been made to increase the age of eligibility for Employees' Pension Insurance benefits from 60 to 65. These actions should moderate the expected rise in payroll taxes.

THE JAPANESE LABOR MARKET

By Robert Evans, Jr.¹

CONTENTS

	Page
Summary	240
Introduction	240
The Labor Market.....	241
Labor Force Participation.....	242
Unemployment	243
Hours	244
Aggregate Wage Movements.....	245
Mobility	246
Signs of Change.....	246
Expected Mobility.....	248
Standard and Non-Standard Workers.....	249
Wage Gains From Mobility	249
Separations.....	250
Non-Regular Workers	250
<i>Shukko</i> (Loaned Workers)	251
Part-Time Workers	252
<i>Haken Rodosha</i> (Dispatched Workers).....	252
Foreign Workers	253
Conclusion	253

TABLES

Measures of the Labor Market.....	244
The Rate of One Year Job Change.....	247
Non-Regular Employees, 1987 Categories	251

SUMMARY

The Japanese labor market exhibits some signs of change. Most indicators, however, suggest that the basic patterns of the postwar years continue. Those changes which are observed largely involve non-regular and part-time employment. These trends tend to support the continuation of basic patterns rather than suggesting or leading toward major changes in basic patterns.

INTRODUCTION

Labor markets in all countries share certain functional similarities because of a common need to attract, motivate, and reward employees. Within each country, labor market patterns will exhibit

¹ The author is Atran Professor of Labor Economics at Brandeis University. Research underlying this paper was done while a research scholar supported by the United States-Japan Education Commission [Fulbright] and a visiting professor at Keio University's Keio Economics Observatory. Some material and ideas previously appeared in: Japan's Labor Market: Continuity and Change. *Keio Business Review* 25 (No. 4), 1989.

both continuity and change. In Japan the unique institutions and patterns of the labor market which have long fascinated foreign and Japanese viewers alike were for a long time perceived as too rigid and too culturally connected to withstand the economic forces associated with rapid growth. Consequently, many observers had expected them to be transformed with economic growth. More recently, Japanese and foreign scholars have come to see these institutional patterns, lifetime commitment until the age of retirement from the primary employer (translated from the Japanese as lifetime employment), an age and seniority based wage system, and enterprise unions, as having played fundamentally important roles in the success of Japan's postwar economy. This was true for the years of rapid growth and the periods of recovery and adjustment to the two oil shocks in the 1970s.

Despite a recognition of the importance of these institutional practices, there continue to be observers who believe that these patterns will undergo enormous change, and that increasingly Japan's labor market practices will come to mirror those found in other advanced economies. My own view is quite different. I find a strong continuity in Japan's basic postwar patterns. There have been changes with time but these are relatively modest and tend to reinforce the basic patterns.

Japanese labor markets, unlike many aspects of the Japanese economy, do not pose a direct challenge to the American economy. Still, Japan's labor markets are of interest to American policy makers for two reasons. One, the labor market institutions which govern the complex interplay between firm and worker behavior may offer insights which could guide American labor policy. This does not mean trying to graft onto American practice random attributes of Japanese behavior—for example, quality circles. Rather, it means understanding the functional role of Japanese institutions and using that knowledge to improve the functioning of American labor market institutions in ways that are consistent with American ideals and values. Two, changes in Japanese labor markets may have implications for a variety of other aspects of Japan's economy and thus may be seen as a harbinger of changes which will complement or challenge America's economic situation.

THE LABOR MARKET

In the 1980s, Japan's real income per-capita has grown more rapidly than in the United States. The number of new jobs in Japan has grown much less rapidly than in the United States. Employment in Japan grew by 6 percent between 1980 and 1986 while the number of employees grew by 9.6 percent.² In Japan increases in the cost of living have been much more modest than in the United States. Between 1984 and 1988 the CPI rose by 3.5 percent while in the United States the increase was 13.8 percent.³ The Japanese work more hours per year and their income buys fewer goods because of the high absolute level of prices. Within this general view

² Japan. Ministry of Labour. *Rodo Hakusho*, 1989 (Labor White Paper, 1989). Tokyo, 1989. Appendix p. 16.

³ *Japan Labor Bulletin*, 28 (Nov. 1989), p. 10; and, U.S. Department of Labor. Bureau of Labor Statistics. *Handbook of Labor Statistics*, Bulletin 2340, 1989, p. 475.

of the economy the paper examines patterns of [a] labor force participation and hours of work, [b] unemployment, [c] aggregate wage determination, [d] interfirm mobility, and [d] non-regular workers including the use of part-timers, dispatched and loaned workers, and other forms of non-regular workers.

LABOR FORCE PARTICIPATION

In both Japan and the United States, males in the prime ages, those 25 to 44 years of age, are extensively (96 to 97 percent) in the labor force. This pattern of labor force participation shows little change. At older ages, Japanese men are much more apt to be in the labor force. In the United States in 1988, 67.0 percent of males 55 to 64 years of age and 16.5 percent of those 65 years of age and older were in the labor force. In Japan, the comparable percentages were 91.3 percent for those ages 55 to 59, 71.1 percent for those ages 60 to 64, and 35.8 percent for those ages 65 years and older.⁴ In recent years, however, participation rates for those over the age of 65 have declined in both countries by about 30 percent.

The labor force participation patterns for women in the two countries reflect a greater divergence. In the United States in 1960, the labor force participation rate for women ages 20 and older was 37.6 percent while in 1988 it was 56.8 percent with a peak rate of 75.2 percent for those 35 to 44 years of age. In Japan the female labor force participation rate in 1988 of 48.9 percent is little changed from the level in 1970, but down considerably from the 54.5 percent level in 1960.⁵ This twenty-year stability of overall participation masks underlying trends. The decline from 1960 to 1970 is associated with the proportion of women who are self-employed, 11.8 percent in 1988, and family workers, 18.7 percent in 1988, both of which have declined over time. Over these same years the proportion of women in the labor force who are employees has grown. Since participation rates are higher for those engaged in self-employment and family work the decline in these categories has masked rising participation rates for those who are employees. For the more recent years there has been a marked decline in participation of those ages 15 to 19. The participation rate for these women fell from 33.6 percent in 1970 to 16.5 percent in 1988. The increased proportion of Japanese young people going on to high school and college is clearly the explanation.⁶ This shift has masked an increased participation rate for all other age groups of women except those who are 65 years of age and older.

A clearer perception of female labor force participation may be obtained by looking at rates adjusted for marriage and age. For unmarried women 25 to 44 years of age and for older married women, 45 to 54 years of age, there are few differences in participation rates between Japan and the United States. Among younger married women, those with elementary and secondary school aged children, the participation rates are much lower in Japan.

⁴ Labor Department, *Handbook of Labor Statistics*, p. 26; and, Ministry of Labour, *Rodo Hakusho 1989*, Second Appendix, p. 77.

⁵ Labor Department, *Handbook of Labor Statistics 1989*, p. 26-27; and, Japan. Management and Coordination Agency. *Statistical Yearbook of Japan 1989*. Tokyo, 1989. p. 71.

⁶ *Statistical Yearbook of Japan, 1989*, p. 71, 73.

An explanation for the divergent behavior of young married women in the two countries is complex. Rapid growth over the entire postwar period and steady growth in recent years means that Japanese families have not felt the need for two incomes in the same way that American families have. Japanese social standards place a higher value on women being out of the labor force during the child rearing years. A survey by the Tokyo Metropolitan Government in 1988 found that 83 percent of the men and 77 percent of the women respondents believed that women who work outside the home should still bear the chief responsibility for child-care and housework. In addition, opportunities within companies for meaningful work for women are fewer in Japan than in the United States. Nearly 70 percent of those replying to a *Nihon Keizai Shimbun* poll in 1988 reported that they believed the highest management position a woman could achieve was as a department head, a position which lies between a section and a division head.⁷ Lastly, there is the unforgiving nature of opportunity in Japan which means that it is more essential that children do well in school. This requires parental [female] involvement.

Despite all of these factors suggesting separation of work and home careers for men and women, there are signs of change. The passage in 1986 of the Equal Employment Opportunity Law, even if it did not provide for penalties for non-compliance, has aided those women who wished to have a full-time career. A shortage of workers, especially well-trained workers in high-technology fields, has also helped. The number of women with managerial titles increased by 50 percent between 1982 and 1988, and in 1988 a record number of women were company presidents. The Economic Planning Agency and the Ministry of Labor both see more effective use of women as one solution to a perceived shortage of workers.⁸

UNEMPLOYMENT

The level of unemployment has historically been very low in Japan. It was 1.2 percent in 1970, rose above 2 percent in 1975, and then drifted upward to a high of 2.8 percent in 1987. Since then, it has come back down to an average of 2.3 percent for the first 11 months of 1989 (table 1). Japan's unemployment rate has sometimes been described as being artificially low. It has been suggested that it would be much higher if it were to be measured in the same way that the United States measures unemployment. Careful study, however, suggests that use of United States concepts would leave Japan's unemployment rate virtually unchanged.⁹ In Japan the distribution of unemployment has moved against older workers. In 1968, males 60 to 64 years of age had an unemployment rate of 1.8 percent. In 1987, it was 6.7 percent, a much bigger increase than the overall doubling.¹⁰ This worsening of the employment situation is also reflected in the ratio of job openings to applicants at the Public Employment Service. In July 1989, when the overall

⁷ *Japan Economic Institute Report*, May 5, 1989, p. 3-4.

⁸ Solo, Sally. Japan Discovers Woman Power. *Fortune*, June 19, 1989, p. 64-68.

⁹ Sorrentino, Constance. Japanese Unemployment: BLS Updates its Analysis. *Monthly Labor Review* 110, June 1987, p. 47.

¹⁰ Ministry of Labour, *Rodo Hakusho, 1989*, Second Appendix, p. 79.

ratio was 1.35, it was .2 to .3 for those 55 years of age and older.¹¹ The poor prospects for older workers reflects both the slow growth in total employment and the nature of the life-time commitment which was designed to cover the years until children were grown and on their own. This meant early retirement from the principal employer at age 55 over most of the postwar years but now means retirement at age 60. This retirement from the primary employer did not mean retirement from the labor force. The government would like the retirement age to be increased to 65 years of age to accompany a change in the age of eligibility for social security benefits to age 65. There is, however, considerable opposition from business circles to moving the forced retirement age to 65. This increasingly will be a problem for Japan, where the proportion of the population over the age of 55 has risen from 17.6 percent in 1980 to 22.9 percent in 1990, and will rise to 25.3 percent by the year 2000. Currently at 22.9 percent, the proportion of the Japanese population 55 years of age and older stands above that in North America but below that of Northern Europe.¹²

Table 1. MEASURES OF THE LABOR MARKET

Year	Ratio of Job Openings to Applicants	Change in Employees	Desired Job Change, Searched	Searched/ Employees	Unemployed
1970.....	1.41	3.3%	.....	.....	1.2%
1971.....	1.12	3.2	.....	.....	1.3
1972.....	1.16	1.5	.....	.....	1.5
1973.....	1.76	4.3	101	.0279	1.3
1974.....	1.20	.6	97	.0266	1.4
1975.....	.61	.2	94	.0258	2.0
1976.....	.64	1.8	103	.0278	2.2
1977.....	.56	1.5	113	.0300	2.1
1978.....	.56	.8	121	.0319	2.4
1979.....	.71	2.0	127	.0328	2.2
1980.....	.75	2.5	131	.0330	2.0
1981.....	.68	1.7	129	.0320	2.3
1982.....	.61	1.5	138	.0337	2.4
1983.....	.60	2.7	163	.0387	2.7
1984.....	.65	1.4	163	.0382	2.7
1985.....	.68	1.1	163	.0378	2.6
1986.....	.62	1.5	169	.0384	2.7
1987.....	.70	1.1	175	.0395	2.8
1988.....	1.01	2.5	180	.0397	2.5
1989.....	1.26	.....	.....	.....	2.3

¹ First 11 months.

Sources: Japan. Management and Coordination Agency. *Annual Report on the Labour Force*, 1988, 1989. p. 3, 11; Ministry of Labour. *Koyo Kanri Jittai*, 1988 (Employment Administration); and, Ministry of Labour. *Rodo Hakusho, 1989* (Labor White Paper). Appendix. p. 16.

HOURS

Japanese workers work long hours. In the United States in 1988, private non-agricultural production and supervisory workers averaged 34.7 hours per week, about 138.8 hours per month, down about half a day a week from the 1950s. In Japan, the average was 175.9 hours a month in firms of 30 or more employees. This total

¹¹ *Japan Labor Bulletin* 28, Nov. 1989. p. 2.

¹² Japan Institute of Labour. *Employment and Employment Policy*. Tokyo, 1988. p. 13.

consisted of 160.2 of scheduled hours and 15.7 hours of overtime. This level of hours is lower than before the oil shock, but most of the decline occurred at the time of the shock. Since then, there has been little change in hours.¹³ In manufacturing in 1987 Japanese working hours exceeded those in the United States by 219 hours per year. The Japanese workers took about half as many paid days of leave, but had more national holidays. The major difference was that Japanese workers worked more Saturdays and Sundays.¹⁴ On an annual basis, excluding part-time workers, the average number of working hours in 1989 was 2,088.

A variety of reasons has been offered to explain the longer hours.¹⁵ Many of these are closely tied to the commitment, seniority wages, and enterprise union pattern of the Japanese labor market. Regularly scheduled overtime is one of the buffers used to preserve the commitment to continued employment. The flexibility in an individual's actual wage increase with additional seniority is heavily influenced by attendance records.

AGGREGATE WAGE MOVEMENTS

The pattern of wage changes in Japan has been formed by the process of *shunto*, the Spring Wage Offensive, a ritualized exchange of information and demands between national centers of labor and management that begins in the late fall. It culminates in the following April with actual negotiations between the enterprise unions and their employers. This institutional pattern began in 1955 and was soon well entrenched. In January of this year, Rengo (Japanese Trade Union Confederation), the new national labor organization which has replaced Sohyo, Domei, and Churitsuroren, issued a white paper which argued that priority should be given to living standards rather than industrial output and criticized the management policy of keeping wages down. To counter the view that, at current exchange rates, Japanese wages are very high, they noted that, on the basis of purchasing power, average wages in Japan are only 62 percent of those in the United States. On the other hand, Nikkeiren, the employers' organization, argued that excessive wage increases would give rise to inflation.¹⁶ In April, these lofty concepts will be replaced by specific decisions on firm by firm increases in average wages. Decisions by major firms will flow outward and downward to other industries and to smaller firms. The averages so set will, through government study commissions, set the standard for public wage increases as well. Analysis over these years has shown that company profits, the level of consumer prices and the tightness of the labor market have governed the level of *shunto* wage increases.

The *shunto* pattern transmits economic forces in Japan and the world very rapidly to the labor market. This was clearly demonstrated during the oil shock period. Nominal wage settlements shot up much more rapidly than they did in the United States. The rate

¹³ Department of Labor, *Handbook of Labor Statistics 1989*, p. 304; and Ministry of Labour, *Rodo Hakusho 1989*, Appendix, p. 66-67.

¹⁴ Japan Economic Institute. *JEI Report*, March 16, 1989. p. 3.

¹⁵ Sano, Yoko. Seven Mysteries of Long Working Hours. *Japan Quarterly* 35, July-September 1989. p. 248-252.

¹⁶ *Japan Labor Bulletin* 29, March 1990. p. 3.

of increase in 1974 was 32.9 percent. Then, like the end of a brief but intense summer rain, the annual rate came down much more rapidly than in the United States because the annual wage settlements in the spring acted as a de facto incomes policy.¹⁷

MOBILITY

The three major institutional patterns, commitment, seniority wages, and enterprise unions, exert a major impact on inter-firm mobility and turnover rates. In general, these are lower in Japan than in the United States. A survey of 25- to 30-year-old men and women in Japan, the United Kingdom, and the United States found that 50 percent of the Japanese had changed jobs. In the United Kingdom and the United States, 80 to 90 percent had changed jobs.¹⁸ The age distributions of relatively high levels of inter-firm mobility are different in the two countries. In the United States, high levels of mobility occur at younger ages, while in Japan they occur at older ages. In 1982-83, 37.9 percent of Japanese male workers ages 25 to 34 years of age had 10 to 19 years of firm tenure, while in the United States, the proportion for the same age group was 11.4 percent. After the age of 55 to 60, median tenure, according to the *Wage Census for Japan*, falls below that for the United States.

One measure of the changes in turnover for Japan may be found in table 2, which measures the proportion of job changes within a year, recorded every few years by the *Employment Status Survey*. There it will be seen that the ratio of male job changers to non-changers rose during the years of rapid growth, peaking in 1974 at a rate 70 percent higher than in 1959. This rising proportion of job changers caused some to believe that Japan's labor market mobility patterns were indeed changing. After the oil shock, however, the rate of one year job change declined to almost its 1959 level. In 1987, the rate of one year job change had returned to its 1974 level. A different survey found that 4.2 percent of those employed during February 1989, had changed jobs during the previous twelve months. This was up .1 percentage point from 1988.¹⁹

Signs of Change

Renewed expectations of change in the labor market come from a variety of sources. A glance at newspaper kiosks provides support for these views. Kiosks abound with magazines which advertise jobs and explain to readers the advantages of job changes. One source of expected change has been the slowdown in Japanese economic growth which occurred at the same time as the oil shock. This, in association with an increased internationalization of major Japanese corporations and the appreciation of the yen, changed dramatically the risks faced by large firms. It also probably changed the ability of the government to provide implied safety nets. As Kimishisa Sato of the Mitsubishi Research Institute wrote, "... Corporate trends toward diversification and restructuring

¹⁷ Evans, Robert, Jr. Japan's Incomes Policy. *Challenge*, Jan.-Feb. 1985. p. 33-39.

¹⁸ *Japan Labor Bulletin* 28, Oct. 1989. p. 2.

¹⁹ Japan Information Center. *Japan Report* 35, Dec. 1989. p. 6.

Table 2. THE RATE OF ONE YEAR JOB CHANGE

(Males)

Year	I No. not Changing ('000)	II No. Changing ('000)	III No. Desire Change ('000)	IV Change Rate (II/II + I)	V Change/ Desire (II/III)
1959.....	24,427	641	1,054	2.56	.61
1962.....	25,051	919	1,055	3.54	.87
1965.....	26,366	975	932	3.57	1.05
1968.....	28,149	1,169	1,323	3.99	.88
1971.....	29,556	1,207	1,383	3.92	.88
1974.....	30,240	1,363	1,516	4.31	.89
1977.....	31,474	975	2,455	3.00	.40
1979.....	31,814	1,106	2,751	3.48	.40
1982.....	32,698	907	2,749	2.98	.33
1987 *.....	33,541	1,511	3,341	4.28	.45

* This is for those whose yearly activity was "working." The figures for "mainly working" were 33,041, 1,434 and 4.16.
 Sources: 1959-1982: Japan, Management and Coordination Agency. *Japan Statistical Yearbook*, 1989. p. 79; 1987: Management and Coordination Agency. *Employment Status Survey*, 1987, 1989. v. I. p. 450, 544.

will require increasing flexibility from workers."²⁰ This implies a shift of employment risks toward employees, which, in turn, would mean shorter average tenure and an effort by employers to insulate core employees from economic downturns by the use of wider bands of contingent employees: part-time workers, temporary workers, employees of sub-contractors, and *haken rodosha* [dispatched workers] who are similar to temporary service workers in the United States.

The timing and the nature of a major change in the labor market is difficult to predict. The Japanese labor market has never been as inflexible as the concept of lifetime commitment might imply, and others have stressed the evolutionary nature of Japanese management. It is possible that expected changes will bring the demise of current institutional practices and significantly affect core workers. It is probably more likely that the only decline would be in the proportion of core workers with the benefits of lifetime commitments, age-based wages, and enterprise unions. The basic organization of Japan's labor markets as they affect large employers, those with 1,000 or more employees, which employed 23.7 percent of non-agricultural employees in 1988,²¹ is centered upon an employer's commitment to do everything possible to maintain employment over the regular worker's working life, that is, to the fixed age of retirement for that firm. The current median retirement age is 60. Company commitment also involves the firms in providing opportunities for regular workers to experience growth in skills, responsibility, and income over his (and to a much smaller extent, her) lifetime. The employer commitment as a concept has dominated decisions and practices for both large- and small-sized firms. The medium- and small-sized firms may not be able to meet all of the commitments that large employers do, but the con-

²⁰ Kanabayashi, Masayoshi. More Japanese Choose Part-time. *Asian Wall Street Journal*, May 16, 1989. p. 16.

²¹ Ministry of Labour, *Rodo Hakusho*, 1989, Second Appendix, p. 81.

cept provides small- and medium-sized employers with goals and standards which they try to achieve.

If the importance of life-time commitment should weaken, either because firms are less willing to grant it or because it is perceived by workers as less valuable, then one should expect to see greater inter-firm mobility. With increased mobility would come fewer years of average company service, higher turn-over rates, and a less steep slope in the relationship between salaries and length of company service. This latter is necessary if workers are to increase their compensation through inter-firm mobility.

Expected Mobility

Actual mobility is the result of two forces, the propensity and the opportunity for mobility. A changing labor market in Japan implies an upward shift in the propensity of Japanese workers to be mobile between firms and an increased willingness of Japanese firms to employ mid-career job changers. Both of these changes could be masked by a downturn in employment opportunities. Under such circumstances workers would stay with employers which, in more favorable economic circumstances, they would have abandoned. On this point, the current Japanese labor market presents certain ambiguities. The data in table 2 show that between 1959 and 1965 there was an increase in both actual and desired mobility. Since the oil shock, the propensity to be mobile, measured by the ratio of those who wished to change jobs divided by the number not changing (table 2, column III/I), has gone up, but until 1987 no corresponding increase in actual mobility was observed.

Does the 1987 figure for job change represent a structural change, a random event, or a response to a higher level of labor demand? In table 1, the data from the public employment offices showed that the ratio of job openings to job applicants rose from 1986 to 1987 and then recorded a large increase in 1988 which continued into 1989. In table 1, it also can be seen that the number of employees who wished to change jobs rose by 17 percent in the five years 1982 to 1987, while the job opening ratio rose by 13 percent. Yet the large increase in the opening-to-applicants ratio between 1987 and 1988 was not matched by a similar increase in the number who wished to change jobs. Indeed, for men this proportion even fell, and male job mobility did not increase in 1988 over 1987 and rose by only .1 percentage point for 1988-89 over 1987-88. It is on the basis of these patterns that I conclude that there has not been a structural shift in mobility or desired mobility for regular male workers.

Are current opportunities for job mobility so poor that they inhibit desires for changes in the institution of lifetime commitment? In table 1, there are two measures of aggregate job opportunities for the years 1970 to 1987. These are the ratio of active job openings for ordinary jobs to active applicants. Excluded are openings for new school graduates and for part-time work. The second is the percentage change in the number of new employees. The impact of the oil shock and the slowdown in the growth of the economy in the early 1970s are clearly evident. The average number of jobs listed fell by 13.8 percent. Yet the ratio of applicants to jobs fell by

50 percent. The average increase in the number of new employees in the 1980s was about one-half the rate observed in the early 1970s. This suggests that there was a one-time downward shift in employment opportunities in the 1970s, but little subsequent variation in the new level of employment opportunities. Inclusion of the rate of growth of real Gross National Product or the unemployment rate would not alter the conclusion that the labor market has been sufficiently active so that it would have allowed significant changes in mobility if it had been desired.

STANDARD AND NON-STANDARD WORKERS

One might also look at changes in the proportions of standard workers (*hyojun rodosha*), mid-career job changers (*chutosaiyosha*), and wage gains from employment changes and separations. A standard worker is one whose continuous service with the current employer is consistent with lifetime commitment. The proportion of male standard workers in different industries and in different age groups varies. In 1987, 70 percent of 35- to 39-year-old male workers at large manufacturing firms were standard workers. For men ages 55 to 60 years of age the proportion was 55 percent. In retail trade, the comparable figures were 27 percent and 15 percent. Over the decade 1977 to 1987, the proportion of standard male workers increased in manufacturing, retail trade and services, except for workers ages 25 to 29 and to age 34 in retail trade. Among those younger workers, those 25 to 29 years of age, the proportion of standard workers declined by 5 percentage points in manufacturing and 10 percent in services. With rising proportions of standard workers, the average years of service with employers has risen, with the exception of the proportion for younger workers.²²

The opposite of the standard worker is the mid-career job changer. On an annual basis, their number can be measured by the number of workers with less than one year of job service with their current employer. In these years, less than 10 percent of the male work force fall into this category. The distribution is, as would be expected, U shaped with the lowest proportion found among males 40 to 50 years of age. In a changing labor market, the proportion of mid-career job changers should be increasing. Yet for broad industry groups, the proportion of these mid-career job changers fell for most industries between 1977 and 1987. Not even within the rapidly growing service sector, nor at younger ages, except among very large employers, was there the suggestion of major changes.²³

WAGE GAINS FROM MOBILITY

An increase in inter-firm mobility among voluntary job changers should be accompanied by an increasing proportion of workers receiving significantly higher wages in the new place of employment. In 1986, approximately 35 to 40 percent of voluntary job changers up to 35 years of age obtained jobs in which their new employment had wages which were 10 percent or more higher than the previous

²² Ministry of Labour, *Rodo Hakusho, 1988* (Labor White Paper 1988), p. 244.

²³ *Ibid.*, p. 246.

job. Similar proportions were observed in 1976, just after the oil shock, and in 1981. In 1986 and 1987, workers 29 years of age and younger were not more likely than workers 30 to 34 years of age to have received larger wage increases as the result of inter-firm mobility.²⁴ Nor did an increasing proportion of men and women list inadequate income as their reason for changing jobs. In fact, that reason steadily declined between 1976 and 1986.²⁵

SEPARATIONS

At given levels of economic activity, a changed and more mobile labor market implies an increased separation rate as workers take advantage of their new opportunities. This has not occurred. For all reported industries and firms of 30 or more, the separation rate was 30.8 percent in 1965, dropping to 22.1 percent in 1975 after the oil shock and the rapid inflation of that time. Since then, the rate has gently drifted down to about 19 percent. In 1985, it was 18.7, rising to 19.6 in 1988.²⁶ For regular workers, the rate was 11.3 percent in the first half of 1988, while for part-time workers it was 24.2 percent. Both were the lowest in 12 years.²⁷

The reasons given for separations have changed. In 1970, almost 80 percent of all separations in large firms were for personal reasons. Even higher percentages were recorded for medium and small sized firms. In 1987, personal reason separations had declined to 70.5 percent among large firms with similar percentage point declines in other sized firms. Increases in retirements, the ending of term contracts, and the needs of the enterprise made up the difference.²⁸ The latter two suggest a labor force developing some increased flexibility on its edges, but pushed by employers rather than the desires of employees.

NON-REGULAR WORKERS

A 1987 survey of the Ministry of Labour found that 84 percent of employees were regular employees and 16 percent were classed in one of six non-regular categories. These were (a) dispatched workers, (b) loaned workers, (c) temporary and day workers, (d) contract and registration workers, (e) other non-regular workers, and (f) part-time workers. Illegal foreign workers constitute a seventh group, but they were not included in this survey. Part-time workers constituted 62 percent. A little more than one-half of all employers reported using part-time workers, while only 6.3 percent of employers used dispatched workers. The largest use of non-regular workers was in restaurants while the smallest use was in transportation and communications. By functional units within a firm the greatest use was in production, 16.3 percent, while the smallest use was in research and development.²⁹

The number of different categories of non-regular workers, six, and the common usage of two additional words *arubaito* and *shoku-*

²⁴ Ministry of Labour, *Yearbook of Labour Statistics*, 1987, p. 29.

²⁵ *Ibid.*, p. 264.

²⁶ Ministry of Labour, *Rodo Hakusho, 1989*, Appendix, p. 36.

²⁷ *Ibid.*, Second Appendix, p. 102.

²⁸ *Ibid.*, Appendix p. 36.

²⁹ Japan. Ministry of Labour. *Shugyo Keitai no Tayoka ni Kansuru Jittai Chosa no Kekka Sokuho* (Survey of diversified types of labor). [unpublished], 1988. p. IV 1-4.

taku, compared to the U.S. usage of only two categories, temporary and part-time workers,³⁰ is consistent with the idea that the Japanese labor market is a mosaic of different roles for different categories of employees. This idea is reinforced by the reasons given by employers for using the various kinds of non-regular workers. It would appear that the workers in these categories supplement and maintain the permanent commitment portion of the labor market. Change in the commitment portion of the labor market implies that these other workers would then come to be used more as substitutes and alternatives rather than as supplements.

Table 3. NON-REGULAR EMPLOYEES, 1987 CATEGORIES

	Loaned	Dispatched	Part-time	Temporary	Contract	Other
% Emp.....	1.2	.6	9.9	2.6	.9	.9
Percent of Establishments Using						
Manufact.....	14.9	4.3	60.2	22.4	3.8	8.5
Utility.....	12.6	3.3	20.8	40.5	17.0	22.5
Trans & Commun.....	14.3	3.1	30.8	21.2	5.1	6.2
Trade.....	14.5	6.1	63.5	14.5	7.9	8.9
Finance & Insur.....	7.6	19.1	39.9	13.5	16.0	10.6
Real Estate.....	36.0	10.9	32.4	27.7	11.9	12.4
Services.....	14.0	6.9	50.6	29.6	12.0	11.1
All.....	14.1	6.3	53.7	21.3	7.7	9.1

Sources: Japan, Ministry of Labour. *Shugyo Keitai no Tayōka ni Kansuru jittai Chosa no Keikō Sokusho* (Survey of Diversified Types of Labor). Unpublished, 1988. p. IV-1.

SHUKKO (LOANED WORKERS)

Loaned workers are a special type of employee relatively unique to Japan. They exist because of the very close sub-contractor relationship. The loaned worker brings both needed human capital to the sub-contract firm and provides parent firms with a level of employment flexibility during difficult times. The loan of a worker allows major firms to maintain a commitment to an employee without the need to have that person on the parent company job-site. Large sending firms typically pay the difference between actual wages in the receiving firm and the wages the employees would have received if they had not been sent, and these years can be counted toward retirement at the sending firm. In recent years, large manufacturing firms have been the major sending firms (59.7 percent of loaned workers in 1987), while smaller companies in retail trade and services have been the principal receiving firms. If there is a change in the labor market to lessen the concept of commitment, then one would expect to see even less use of loaned workers. This does not seem to be the case. Between 1983 and 1987, there was no particular shift in the utilization of loaned workers, though the proportion of workers over the age of 40 in the loaned category did increase. This is related to issues of retirement.³¹

³⁰ Belous, Richard S. How Human Resource Systems Adjust to the Shift Toward Contingent Workers. *Monthly Labor Review*, v. 112, March 1989. p. 7-12.

³¹ Uenishi, Ryu. *Shukko ni yoru Rodo Ido no Genjo to Kadai* (Current status and problems of loaned workers). *Rodo Tokei Chosa Hokoku* (Monthly Labour Statistics and Research Bulletin), v. 41, January 1989. p. 11-20.

PART-TIME WORKERS

The majority of non-regular workers are part-time workers, and most of them are married women. This is a rapidly expanding segment of the labor market. The number of less-than-full-week workers (less than 35 hours a week) in non-agricultural establishments who were female has increased by a factor of almost two and one-half since 1970. The numbers went from 8.9 percent in 1960 to 23.1 percent in 1987.³² Most of the increase since 1980 has occurred among women working 15 to 34 hours a week.³³ Despite this growth, part-time employees are a smaller proportion of the Japanese work force, 10.1 percent in 1987, than in the United States, where the proportion was 17.9 percent. Japan's utilization of part-time workers is closer to that of France and West Germany. Only in manufacturing do the Japanese lead in their utilization of part-time workers, 12.6 percent of their work force, compared to 5.6 percent in the United States.³⁴

In 1987, less-than-35-hour-a-week employees were about 10 percent of employees in firms of 30 or more workers, and almost twice that in firms of 1 to 29 employees, though growth in these categories since 1980 has been fastest in firms of 100 to 499 employees and slowest in firms with 500 or more employees. Despite this growth, and probably additional growth in the future, part-time workers are not apt to be substitutes for core workers, and, as a consequence, a threat to the permanent commitment system. For example, among regular female employees, an increasing number, 52.3 percent in 1987, reported that they are the principal provider in their household. Among part-time workers, assisting in household expense is still the major reason given for working. In addition, the rate of wage increase for part-time workers has lagged behind that for regular workers. It seems clear that employers largely see part-time workers as filling a particular place in their labor needs.³⁵

HAKEN RODOSHA (DISPATCHED WORKERS)

With legislation in 1985 to make dispatched workers explicitly legal in 1986, the number of companies supplying dispatched workers (temporary service workers in the United States) has markedly increased. Dispatched workers are not a random subset of the labor force. Within the building services sector, they are primarily older males.³⁶ Among women dispatched for office work, the employees are considerably younger and less apt to be married than the typical woman in the labor force.³⁷ The *haken rodosha* largely appear

³² Ministry of Labour, *Shugyo Keitai no Tayoka*, p. 61.

³³ Ministry of Labour, *Rodo Hakusho 1988*, Appendix, p. 33.

³⁴ *Ibid.*, 1989, Appendix, p. 129.

³⁵ Okunishi, Yoshio, and Kodaira Motoharu. *Patotaimu no Rodo Shijo* (The labour market for part-timers). *Rodo Tokei Chosa Geppo* (Monthly Labour Statistics and Research Bulletin), v. 40, November 1988, p. 8-11.

³⁶ Sano, Yoko. *Birumntenasu Gyo no Genjo to Rodo no Jittai* (The current conditions of building maintenance companies and workers). In Japan Institute of Labour. *Sabesu Keizai to Shinta na Shigyo Keitai* (The Service Economy and the Nature of New Firms). Tokyo, 1987. p. 67.

³⁷ Evans, Robert, Jr. *Haken Rodosha (Dispatched Workers): Harbinger of Change?* [Unpublished] Forthcoming in Japanese in *Nihon Rodo Kyokai Zasshi* (Monthly Journal of the Japanese Institute of Labour), p. 19.

to be employees engaged in a new form of subcontracting designed to provide highly specialized skills to corporations and to provide workers whose duties fall outside the pattern for core workers. Consequently, they appear to reinforce the traditional labor force pattern rather than to be harbingers of change.³⁸

FOREIGN WORKERS

In recent years, Japan has debated whether some of its perceived labor shortages should be met by allowing more foreign workers to be employed. Historically, these have been few in number and limited to jobs which Japanese could not perform, for example, native speakers as foreign language teachers. The number of these legal foreign workers has grown from 33,634 positions in 1982 to 81,407 in 1988. Most of these positions have been for entertainers, some 62 percent in 1987.³⁹ At the same time, an increasing number of relatively unskilled workers have been entering Japan and overstaying their visas. The number of violators has increased from 4,768 in 1983 to 17,854 in 1988. It has been estimated, however, that, currently, there may be as many as 150,000 illegal workers.⁴⁰ Until 1988, women, working as hostesses, constituted the majority of illegal workers known to the Ministry of Justice. In 1988 the sex ratio swung strongly toward males. These male illegals were predominantly employed in construction and manufacturing. Among smaller employers, these are the industries which strongly perceive labor shortages at current wage rates. Officials within Japan seem divided between those who would accept more unskilled workers and those who would not.

CONCLUSION

In the classic mystery, evidence points in many directions and involves several individuals, but, eventually, there is a clear pattern. The Japanese labor market shares some of these attributes. In some aspects, there has been great continuity from the oil shock in early 1974 to 1988, in annual hours of work, etc. The institutions of the labor market, the *shunto* process and lifetime commitment as a concept and as a characterization of life for core workers in large enterprises, appear to be among those elements which have demonstrated continuity. In other areas, the path of change is more clearly seen, especially in Tokyo and among foreign firms. There is an increased use of specialized labor groups. The proportion of women who work as employees continues to grow. And, in the last year or so, the labor market appears to have grown tighter, and firms and government officials talk openly of labor shortages. Yet the evidence for a shortage remains mixed. There are many more jobs than applicants in Tokyo, but that is not true in the regions to the

³⁸ Evans, *Haken Rodosha*, p. 25-27.

³⁹ Kuwahara, Yasuo. Towards Re-establishing a Foreign Workers Policy. *Japan Labor Bulletin* 27, November 1988, p. 6; and, Response to Foreign Worker Issue. *Japan Labor Bulletin* 28, October 1989, p. 4.

⁴⁰ Response to Foreign Worker Issue, p. 6.

north, Tohoku, and the south, Kyushu. More part-timers, especially females, are sought, but their average wages do not rise.⁴¹

Continued labor market pressure, associated with brisk demand for workers and rising wages, will tend to increase pressure upon the government to allow "guest workers." If Japan resists this pressure, it will, in time, lead to a greater importation of partially manufactured goods. It should lead to fewer small stores, which, in turn, could lead to a less Byzantine distribution system, which should also increase imports. From an American perspective, Japan should be urged to avoid dealing with rising labor demand by extending hours or importing Asian workers. Rather, they should allow relative wages to rise and substitute imports for those products which might be priced out of the market by higher wages.

⁴¹ For women, the average hourly part-time wage was 71.9 percent of the full-time wage in 1987, which was the lowest ratio in 12 years and almost 9 percentage points lower than in 1976. Ministry of Labour, *Rodo Hakusho, 1989*, Appendix, p. 134.

WOMEN IN THE JAPANESE LABOR FORCE

By M. Anne Hill ¹

CONTENTS

	Page
Introduction	255
Labor Force Participation and Employment Status	256
Distribution by Industry	259
Distribution by Occupation	260
Educational Attainment	261
The Earnings Gap in Japan	262

INTRODUCTION

Women in Japan have represented a large reserve force of workers who have contributed flexibility to overall employment. Japan's low measured unemployment rate has been due, at least in part, to the large number of women employed in "temporary" positions who appear to leave the labor force altogether during business downturns. The majority of working men have retained "lifetime employment" with little inter-firm mobility. With rapid declines in fertility, rising levels of female education, and changing attitudes, women have entered the formal labor sector in increasing numbers. A greater proportion of them are working as "regular employees." These trends, especially among married women, have been dramatic.

As the female share of the labor force rises, the labor force overall may appear to respond less flexibly to changes in aggregate demand, and Japan may witness an initial slowing of productivity growth, since many of the women who enter the labor force will have less experience and training than their male counterparts. As described below, the male-female wage gap has recently begun to widen, partly as a result of the changing composition of the female labor force. However, as more and more women become permanently attached to the workforce, increases will probably occur both in their productivity and in their relative wages.

If the proportion of women working in the formal sector of the Japanese labor force maintains its upward trend, Japan can anticipate some of the concomitant social changes experienced by her Western sisters: further reductions in fertility, higher measured family income with more two-earner families, rising demand for time-saving consumer goods and services (among them, child care)

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that could ease domestic responsibilities, and perhaps movements to change the nature of "work" in Japan, especially calls for reducing the length of work days, work weeks, and the number of geographic moves.

This paper addresses historical trends in women's work and wages in Japan and closes with prospects for the future.

LABOR FORCE PARTICIPATION AND EMPLOYMENT STATUS

Employment relationships in many Japanese firms possess three distinctive features which influence women's employment, wages, and the gender wage gap: 1) the seniority-merit wage system (*nenko joretsu chingin seido*) which ties wages to an employee's family situation and life-cycle needs as well as to productivity related characteristics;² 2) biannual bonus payments (usually representing roughly one-quarter of total annual earnings);³ and 3) lifetime employment.⁴

Generally, however, only "regular employees" are entitled to the benefits of the seniority-merit wage system, biannual bonus payments, and lifetime employment. Regular employees are defined as those who are employed for an indefinite period or who have worked for more than one month.⁵

In 1988, 69.4 percent of all working Japanese women and 79.6 percent of Japanese men were classified as employees. The remaining labor force participants were either self-employed or family workers. Self-employed workers are those who own and operate unincorporated firms, while family workers are family members employed in such family firms.

Throughout the post-World War II period, with Japan undergoing rapid economic transition, resources and workers have shifted from the agricultural sector and from small, family-run businesses to more highly industrialized activities. As the data in table 1 illustrate, the overall labor force participation rate of Japanese men has declined only gradually during this period. It fell from 83.9 percent in 1948 to 78.1 in 1988. However, the shift across employment statuses has been remarkable. In 1948, more than half of all men in the Japanese labor force were either self-employed or family workers. As opportunities for gainful employment as self-employed and family workers declined, Japanese men shifted fairly steadily into work which would classify them as employees.

² Umemura, Mataji. The Seniority-Merit Wage System in Japan. In Nishikawa, Shunsaku, ed. *The Labor Market in Japan*. Tokyo, University of Tokyo Press, 1980. p. 177-187.

³ Hashimoto, Masanori. Bonus Payment, On-the-Job Training, and Lifetime Employment in Japan. *Journal of Political Economy*, no. 87, October 1979. p. 1086-1104.

⁴ For a thorough description of the Japanese wage and employment system, including labor laws that impinge on this system, see Hanami, Tadaashi. *Labor Relations in Japan Today*. Tokyo, Kodansha International, Ltd., 1981.

⁵ Japan Institute of Labour. *Japan Labour Statistics (1974)*. p. 197.

Table 1. LABOR FORCE PARTICIPATION RATES AND THE DISTRIBUTION OF THE LABOR FORCE BY EMPLOYMENT STATUS

Year	Women				Men			
	Labor Force Participation Rate	Percent Distribution			Labor Force Participation Rate	Percent Distribution		
		Employees	Self-Employed	Family Workers		Employees	Self-Employed	Family Workers
1948	47.4	24.5	12.2	63.3	83.9	44.6	36.8	18.6
1950	49.3	22.5	15.0	62.5	83.2	43.8	36.9	19.3
1955	56.7	28.9	14.4	56.7	85.9	49.7	32.9	17.4
1960	54.5	38.4	15.1	46.5	84.8	59.6	28.7	11.7
1965	50.6	46.4	14.1	39.5	81.7	66.7	24.6	8.7
1970	49.9	54.7	14.2	30.9	81.9	71.5	22.4	6.0
1975	45.7	59.8	14.3	25.9	81.4	75.8	20.2	3.9
1976	45.8	60.9	14.1	24.9	81.2	76.2	19.9	3.8
1977	46.7	61.7	13.8	24.5	80.6	76.2	20.0	3.8
1978	47.4	61.6	13.8	24.6	80.3	75.9	20.4	3.7
1979	47.6	62.0	13.9	24.1	80.2	76.5	20.0	3.5
1980	47.6	63.2	13.7	23.0	79.8	77.1	19.4	3.3
1981	47.7	64.3	13.2	22.3	79.8	77.4	19.2	3.2
1982	48.0	64.5	13.5	22.0	79.5	78.0	18.8	3.0
1983	49.0	65.7	13.3	20.8	79.4	78.5	18.3	3.0
1984	48.9	66.5	13.0	20.3	78.8	78.8	17.9	2.9
1985	48.7	67.2	12.5	20.0	78.1	78.9	17.9	2.8
1986	48.6	68.1	12.3	19.4	77.8	79.3	17.8	2.7
1987	48.6	68.4	12.0	19.3	77.3	79.2	17.8	2.6
1988	48.9	69.4	11.8	18.6	77.1	79.6	17.4	2.6

Source: Japan, Statistics Bureau, *Japan Statistical Yearbook*, Various issues.

While Japanese women currently participate in the labor force as actively as American women, in the United States, nearly all women work for someone else. In contrast 12 percent of all Japanese working women are self-employed (predominantly as homeworkers), and an additional 19 percent work in family-run enterprises. Only two-thirds work as "employees." Only slightly more than half of all working Japanese women attain the status of "regular employee."

The historically large numbers of self-employed and family workers have had a significant effect on the trends in overall female labor force participation. With the decline of the agricultural sector, some women who would otherwise have been employed in family enterprises or small family farms appear to have left the labor force altogether. Consequently, the overall labor force participation rate for Japanese women rose from a 1948 level of 47.4 percent, peaked in 1955 at 56.7 percent, then declined to a 1975 level of 45.7 percent before again beginning to rise slowly. Consequently, Japan stands in stark contrast to most industrialized countries, where post-war female labor force participation rates have risen steadily.

Table 2 depicts current participation rates and the distribution of the labor force by employment status for selected countries. While the overall female labor force participation rate in Japan differs little from that in other industrialized countries, the proportion of all working women who remain self-employed and family workers is higher. While the proportion of working women engaged as employees has risen fairly steadily from 24.5 percent in 1948 to 69.4 percent in 1988, more than 30 percent of all working women

remain self-employed and family workers. The Japanese labor force continues to retain features characteristic of a developing country, especially the existence of a large "informal" sector.

Table 2. FEMALE LABOR FORCE PARTICIPATION RATES AND DISTRIBUTION OF LABOR FORCE BY EMPLOYMENT STATUS

Country	Year	Participation Rate	Self-Employed	Family Workers	Employees
Japan	1987	48.6	12.0	19.3	68.4
United States	1987	54.2	5.7	0.6	93.7
Canada	1987	56.2	6.6	1.3	92.1
Philippines	1987	48.3	31.4	24.1	44.5
Thailand	1984	76.3	17.7	61.9	20.4
Austria	1987	41.5	7.7	8.5	83.9
Denmark	1986	60.4	3.3	4.4	92.3
England	1987	48.2	6.7	0.0	93.3
France	1987	45.8	6.7	7.2	86.1
Italy	1987	35.0	16.4	9.7	73.9
Spain	1987	31.1	15.6	11.2	68.3
Sweden	1987	81.1	4.6	0.7	94.8
Australia	1986	48.3	11.8	1.3	83.7

Source: Rodosho Fujinkyokyu (1989).

That labor supply would differ between Japanese men and women is perhaps not surprising, since in Japan (as in the United States) women's career paths have tended to diverge from men's largely due to differences in family responsibilities. However, in Japan, institutional factors exacerbate this tendency. The Labor Standards Law of 1947, for example, instituted protective labor practices that effectively limited female participation in particular sectors of the economy. Also, until a 1966 court case ruled against such practices, many large firms required that women resign upon marriage. Yet, even five years after the 1966 ruling, all female employees were single in 14 percent of Japanese establishments. Many firms maintained practices requiring mandatory retirement upon marriage (8.9 percent), pregnancy or childbirth (8.8 percent), or by age 40 (11.0 percent).⁶ Often, when women leave a firm, their job tenure is broken. Upon their return, they generally are not credited with previous service. Moreover, frequent transfers combined with a long working day and work week effectively limit continuity of employment for married women, especially those who have children.⁷

Yet, as table 3 illustrates, labor force participation of married women as "employees" in nonagricultural industries has risen dramatically during the past thirty years, nearly quadrupling from 8.8 percent in 1960 to 31.1 percent in 1988. However, the *current* proportion of married Japanese women who work as employees in the nonagricultural sector approaches the rate of 31.7 percent experienced by married American women in 1960.⁸

⁶ U.S. Department of Labor. *The Role and Status of Women Workers in the United States and Japan*. Washington, 1976. p. 40 and 51.

⁷ Hayashi, Hiroko. *Legal Issues on Wages of Japanese Women Workers*. *International Review of Comparative Public Policy*, forthcoming.

⁸ U.S. Department of Commerce. Bureau of the Census. *Statistical Abstract of the U.S., 1986*. Washington, U.S. Govt. Print. Off., 1986.

Table 3. LABOR FORCE PARTICIPATION OF MARRIED WOMEN

Participation Rate/Year	1960	1965	1970	1975	1980	1985	1988
Overall.....	46.6	48.0	48.3	45.2	49.2	51.1	51.6
In Agriculture.....	28.2	22.2	14.9	9.9	7.9	6.5	5.9
In Nonagricultural Industries.....	18.4	25.9	33.1	34.8	40.6	43.7	44.9
Self-Employed & Family Workers.....	9.6	11.8	14.7	13.4	14.5	14.0	13.7
Employees.....	8.8	14.1	18.3	21.3	26.1	29.6	31.1

Source: Rodosho Fujinkyoku (1989).

DISTRIBUTION BY INDUSTRY

Overall, women represented about 40 percent of the labor force in 1985, roughly the same proportion as in 1950. In the interim, the share of all jobs held by women shrank, with both the relative and absolute number of women in the labor force declining between 1970 and 1975. Table 4 displays the proportion of all jobs held by women and the distribution of employed women by industry. Nearly half of all agricultural and forestry workers are women. In 1985, women represented more than half of all workers in the service industry, and nearly half in wholesale and retail trade and finance, insurance, and real estate. The government, utilities, communications, mining, and construction remain predominantly male industries. However, both the proportion of all construction industry workers who are women and the industry's share of all employed women have risen considerably during this thirty-five year period.

Table 4. INDUSTRIAL COMPOSITION OF THE FEMALE LABOR FORCE

Industry	1950	1955	1960	1965	1970	1975	1980	1985
Total								
Percent female.....	38.6	41.6	40.7	39.7	39.3	37.4	38.7	39.7
Percent of women.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Agriculture and Forestry								
Percent female.....	50.6	50.7	51.9	52.9	52.5	52.3	51.1	49.8
Percent of women.....	60.8	44.1	36.6	29.5	22.1	16.5	12.7	10.0
Fisheries								
Percent female.....	9.7	22.4	26.9	29.8	20.4	18.6	24.4	28.9
Percent of women.....	0.5	0.8	1.0	1.1	0.4	0.4	0.5	0.6
Mining								
Percent female.....	11.2	15.6	9.3	10.3	15.0	6.2	9.1	11.1
Percent of women.....	0.5	0.4	0.2	0.2	0.2	0.1	0.1	0.0
Construction								
Percent female.....	6.9	11.8	13.0	13.7	13.4	12.3	14.0	14.3
Percent of women.....	0.8	1.4	1.8	2.4	2.6	3.0	3.6	3.3
Manufacturing								
Percent female.....	29.0	38.4	36.9	36.5	37.6	35.3	38.6	39.5
Percent of women.....	12.0	17.1	19.3	22.4	25.9	24.3	24.6	24.9
Wholesale and Retail Trade								
Percent female.....	38.8	44.0	43.8	44.4	46.0	45.1	46.2	47.4
Percent of women.....	12.2	19.7	21.8	23.8	23.2	26.0	27.0	27.1
Finance, Insurance and Real Estate								
Percent female.....					46.2	44.7	46.1	44.7
Percent of women.....					3.1	3.9	4.1	4.2
Transportation and Communication								
Percent female.....	11.1	12.4	12.1	11.6	13.0	12.1	11.7	12.8
Percent of women.....	1.5	1.4	1.6	1.8	2.1	2.1	1.9	1.9

Table 4. INDUSTRIAL COMPOSITION OF THE FEMALE LABOR FORCE—Continued

Industry	1950	1955	1960	1965	1970	1975	1980	1985
Public Utilities								
Percent female					10.7	19.1	20.0	12.1
Percent of women					0.2	0.2	0.2	0.2
Services								
Percent female	36.6	50.6	51.4	51.0	50.5	49.7	50.8	50.7
Percent of women	11.8	14.1	16.3	17.6	18.9	21.8	23.7	25.8
Government								
Percent female		14.5	16.2	15.8	15.5	15.8	16.6	17.6
Percent of women		1.1	1.3	1.3	1.3	1.6	1.5	1.5

Source: Calculated from the *Japan Statistical Yearbook*, various issues.

In 1950, more than half of all employed women worked in agriculture and forestry. Today, only ten percent of working women are employed in that sector. Larger proportions now work in services (25.8 percent, up from 11.8 percent in 1950) and wholesale and retail trade (27.1 percent). The proportion of all women who were employed in manufacturing increased from 12.0 percent in 1955 to 25.9 percent in 1970 and has fallen marginally since.

Yet some more detailed industrial categories exhibit very high proportions of female workers. For example, more than half of textile and three-fourths of apparel industry employees are women. Plastics, leather, electrical machinery, and precision instruments industries engage a workforce which is more than 40 percent female. In the category of wholesale and retail trade, employees of department stores, food and beverage stores, and restaurants are also disproportionately female.

DISTRIBUTION BY OCCUPATION

Table 5 illustrates the proportion of all employees in an occupation who are women and the distribution of employed women by occupation. The occupational composition of the female labor force has changed dramatically since 1955, with a striking decline in the proportion of all women who work as farmers and their movement into other occupations. The share of all professional and technical jobs held by women has risen from 36.3 percent in 1955 to 45.5 percent in 1985. (However, within all professional occupations, medical and health professionals combined with teachers account for many of these positions.)

Table 5. OCCUPATIONAL COMPOSITION OF THE FEMALE LABOR FORCE

Industry	1955	1960	1965	1970	1975	1980	1985
Total							
Percent female	41.56	40.73	39.70	39.32	46.25	48.29	39.68
Percent of women	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Professional and Technical Workers							
Percent female	36.32	37.27	40.34	39.66	42.86	46.80	45.54
Percent of women	4.06	4.54	5.11	5.84	7.99	9.57	10.63
Managers and Officials							
Percent female	6.67	5.49	4.58	3.73	5.34	5.00	6.64
Percent of women	0.35	0.28	0.32	0.25	0.56	0.51	0.61
Clerical and Related Workers							
Percent female	37.03	39.28	41.51	48.61	50.61	53.57	55.47

Table 5. OCCUPATIONAL COMPOSITION OF THE FEMALE LABOR FORCE—Continued

Industry	1955	1960	1965	1970	1975	1980	1985
Percent of women	8.06	10.85	14.06	18.32	21.25	23.11	24.65
Sales Workers							
Percent female	46.22	44.97	43.90	41.09	38.21	38.52	37.63
Percent of women	14.76	14.83	14.38	13.58	14.44	14.33	14.06
Farmers, Laborers, and Fisherman							
Percent female	48.97	50.38	51.37	51.02	50.31	49.12	48.01
Percent of women	43.29	36.86	29.93	22.42	16.85	13.07	10.46
Mining Workers							
Percent female	26.67	18.75	10.53	9.09	0.00	0.00	0.00
Percent of women	0.47	0.33	0.11	0.05	0.00	0.00	0.00
Transport and Communications							
Percent female	8.45	7.00	11.30	9.48	7.17	6.05	4.85
Percent of women	0.35	0.39	1.06	1.10	0.87	0.70	0.48
Craftsmen and Production Workers							
Percent female	33.71	32.45	30.83	30.64	27.66	29.16	30.61
Percent of women	21.29	22.97	20.29	23.12	22.38	22.50	22.44
Laborers							
Percent female			36.24	34.86	35.14	39.88	44.35
Percent of women			4.42	3.79	2.66	3.13	4.43
Service Workers							
Percent female	57.08	54.36	54.80	58.91	54.70	54.49	54.49
Percent of women	7.35	8.97	10.33	11.38	12.80	12.75	11.85

Source: Calculated from the *Japan Statistical Yearbook*, various issues.

Japanese women have failed to attain managerial jobs. In 1985, only 6.6 percent of all managerial posts were held by women, and less than one percent of all women worked as managers. Japanese men retain nearly half of clerical jobs, although these positions are increasingly held by women. Clerical jobs were held by 8 percent of all women in 1955 and by 24.6 percent of all women in 1985. Surprisingly, Japanese women represent nearly a third of all craft and production workers and more than 40 percent of all laborers. In the United States, less than 20 percent of such jobs are held by women.

EDUCATIONAL ATTAINMENT

As the data in tables 6 and 7 attest, the educational attainment of Japanese men clearly exceeds that of women. In 1985, only 2.8 percent of all Japanese women had attained a college education, compared with 13.5 percent of Japanese men. However, the proportion of Japanese women continuing their education has risen considerably over time. In 1988, a higher proportion of female than male junior high school graduates continued on to senior high school (95.3 percent versus 92.9 percent of men). Although college-attendance rates are similar for men and women, the majority of women attend two-year colleges or technical schools. Only 14.4 percent of female high school graduates entered a four-year college or university, as against 35.5 percent for men.

Table 6. DISTRIBUTION OF TOTAL POPULATION 15 AND OLDER BY HIGHEST LEVEL OF SCHOOLING COMPLETED

(Percent)

	Women			Men		
	1960	1970	1980	1960	1970	1980
Graduates						
Elementary and Lower Secondary School.....	62.8	52.2	38.4	57.7	46.4	32.9
Youth Training School.....	1.9	1.6	2.1	3.5	2.8	3.6
Middle School and Upper Secondary School.....	23.6	32.1	40.4	20.8	27.9	35.5
Jr. College and Technical School.....	1.9	3.9	7.4	3.6	3.6	3.9
University and Graduate School.....	0.4	1.2	2.8	4.9	8.4	13.5
Currently Enrolled.....	6.1	7.9	8.2	8.6	10.4	10.4

Source: Calculated from *Japan Statistical Yearbook*, various issues.

Table 7. PERCENTAGE OF PERSONS ENTERING HIGHER EDUCATION

Year	Senior High School		Two-Year College		Four-Year College and University	
	Women	Men	Women	Men	Women	Men
1950.....	36.7	48.0				
1955.....	47.4	55.5	2.6	1.9	2.4	13.1
1960.....	55.9	59.6	3.0	1.2	2.5	13.7
1965.....	69.6	71.7	6.7	1.7	4.6	20.7
1970.....	82.7	81.6	11.2	2.0	6.5	27.3
1975.....	93.0	91.0	19.9	2.6	12.5	40.4
1980.....	95.4	93.1	21.0	2.0	12.3	39.3
1985.....	94.9	92.8	20.8	2.0	13.7	38.6
1986.....	94.9	92.8	21.0	1.7	12.5	34.2
1987.....	95.0	92.8	21.5	1.8	13.6	35.3
1988.....	95.3	92.9	21.8	1.8	14.4	35.3

Source: U.S. Department of Labor, *The Role and status of Women Workers in the United States and Japan*. Washington, 1976; and, Rodosho Fujinikyoku. *Fuminado no Jitsujō* (Women's labor force situation). Tokyo, 1988.

THE EARNINGS GAP IN JAPAN

The overall pay gap between Japanese men and women remains dramatic. In 1988, the average female employee in Japan earned 51 percent as much as the average male employee. Unfortunately, wage information generally focuses on those classified as employees. There are no readily available data for the wages of self-employed and family workers. As a result, the extent to which reported wage data cover the entire labor force differs for men and women and changes over time, as a rising proportion of all workers have become employees.⁹

Table 8 displays total monthly earnings (including contract and special payments) and monthly hours for men and women who are employees, along with measures of women's relative earnings. During the postwar period, rapid economic growth in the secondary

⁹ Data from Japan's National Survey of Family Income and Expenditure include information by gender on the monthly earnings for individuals in one-person households. While clearly a select sub-sample of the entire population, these monthly earnings data are based on a household survey and are not contingent on either employment status or firm size. These data depict a similar trend. In 1969, women in one-person households earned 76 percent as much as comparable men. Women's relative earnings rose to 82 percent in 1974, then fell to 80 percent in 1979 and to 75 percent in 1984.

and tertiary sectors has produced dramatic wage growth for women. Women's relative wages rose considerably, as both nominal and real wage growth for women exceeded that of men. Simple regressions relating nominal wage growth to GNP growth over the period 1955 to 1986 reveal that, for women, a one percentage point rise in the GNP growth rate produced a 0.85 percentage point increase in women's wage growth and only a 0.65 percentage point increase in the rate of men's wage growth. The earnings ratio of women to men has increased steadily from roughly 0.45 in the late 1950s to a peak of 0.56 in 1978. Relative wages attained a maximum as female labor force participation reached a trough. As the female labor force has again begun to grow, relative wages have begun to fall. The earnings ratio declined to 0.51 in 1988.

Table 8. MONTHLY EARNINGS AND HOURS, BY GENDER, AND WOMEN'S RELATIVE EARNINGS

Year	(In current yen)							
	Women			Men			Women Relative to Men	
	Monthly Earnings	Monthly Hours	Hourly Wage	Monthly Earnings	Monthly Hours	Hourly Wage	Monthly Earnings	Hourly Wages
1955.....	Y8,568	187.5	Y45.7	Y19,632	197.4	Y99.5	0.4364	0.4595
1960.....	12,141	192.1	63.2	29,029	206.8	140.4	0.4182	0.4502
1965.....	22,275	181.4	122.8	46,571	197.8	235.4	0.4783	0.5215
1970.....	45,801	174.1	263.1	89,934	192.7	466.7	0.5093	0.5637
1975.....	114,067	163.0	699.8	204,295	175.8	1,162.1	0.5583	0.6022
1976.....	129,700	165.0	786.1	231,000	178.7	1,292.7	0.5615	0.6081
1977.....	141,644	164.6	860.5	253,698	179.1	1,416.5	0.5583	0.6075
1978.....	152,420	165.1	923.2	271,121	179.6	1,509.6	0.5622	0.6116
1979.....	158,825	165.3	960.8	289,018	181.3	1,594.1	0.5495	0.6027
1980.....	166,397	164.1	1,014.0	309,218	181.2	1,706.5	0.5381	0.5942
1981.....	174,895	163.5	1,069.7	328,001	180.5	1,817.2	0.5332	0.5887
1982.....	180,080	162.9	1,105.5	341,246	180.3	1,892.7	0.5277	0.5841
1983.....	183,989	162.9	1,129.5	352,537	180.5	1,953.1	0.5219	0.5783
1984.....	191,143	164.2	1,164.1	368,775	182.3	2,022.9	0.5183	0.5755
1985.....	195,728	162.5	1,204.5	377,602	182.4	2,070.2	0.5183	0.5818
1986.....	202,664	162.2	1,249.5	388,899	181.9	2,138.0	0.5211	0.5844
1987.....	209,063	162.7	1,285.0	399,682	182.6	2,188.8	0.5231	0.5871
1988.....	208,000	161.1	1,291.1	410,000	183.5	2,234.3	0.5073	0.5779

Notes: The survey includes only regular employees who are defined as persons in one of the following categories: Persons employed indefinitely or under a contract for a period of more than one month; persons employed for 18 or more days in each of the last two calendar months; officials and directors who receive monthly payments; and family members of the self-employed, provided they work regularly and receive monthly payments.

Source: Japan, Ministry of Labor, *Monthly Labor Survey*. Firms with 30 or more employees; 1958-1973 earnings data from 1974 *Japan Labour Statistics*; other years from *Japan Statistical Yearbook*, various issues; and, monthly hours data from Japan, Ministry of Labor, *Women's Labor Bureau, Facts on Women's Work*.

Some of the gender wage gap can be explained by women's shorter working hours; the estimated hourly wage ratio at 0.58 in 1988 generally exceeds the monthly earnings ratio. However, the hourly wage ratio followed a similar upward trend, reaching a high in 1978, and falling through the 1980s. Women's wages peaked as the female labor force declined both relative to men and in absolute numbers.

While Japanese women just entering the labor force fare reasonably well relative to men, the pay gap increases dramatically with age. In 1986, women 18 to 19 earned 84.1 percent as much as men that age. (This ratio is down slightly from 86.9 percent in 1975). Relative wages fall to 65.2 percent by age 30 to 34 and to less than 50 percent for women 45 to 54. Yet the average "employee" has

become proportionately older. Women 40 to 54 now represent more than one-third of all female employees, compared to 19 percent in 1965.¹⁰

Yashiro¹¹ and Osawa¹² provide exemplary research efforts which use human capital theory to explain male-female earnings differences in Japan. Yashiro employs aggregate cross-sectional data for men and women and, for 1976, finds that 46.8 percent of the wage gap can be accounted for by difference in job tenure, with an additional 7.2 percent attributable to men's higher educational attainment. Osawa uses individual data for Japanese men and women to estimate human capital earnings functions. She also discovers that differences in experience and schooling account for much of the wage gap, with schooling accounting for 11 percent and experience differences explaining 26.8 percent.

It appears that women's employment suffered during the dramatic labor market adjustment and structural change that Japan experienced after the 1973-74 oil shock. As women moved out of the labor force, their measured relative earnings rose, apparently indicating that the stayers had higher levels of schooling, greater tenure, and consequently higher wages.

Tan¹³ reports empirical results from a very interesting case study of the labor adjustment experienced by a medium-sized Japanese electrical machinery firm during this period. His data, compiled from the company's annual reports and personnel files, reveal that women appear to have borne the brunt of the firm's adjustment—women as a proportion of the firm's workforce fell from 56 percent in 1969 to only 12.5 percent in 1978. During the intervening years, women's wage growth exceeded men's, and the women who stayed with the firm were characterized by higher levels of schooling, tenure, and not surprisingly, higher wages, when compared with those women who left.

Tenure on the job, size of employer, occupation, schooling, the continuity of experience, and the occupation and industry chosen all influence earnings. In order to analyze the extent to which changes in the underlying determinants of wages can explain the recent downward trend in the relative wages of females, I used data for the period from 1966 to 1986 from the *Basic Survey on Wage Structure*, which reports wages, age, and job tenure, by categories of sex, education, and firm size, but which includes contract earnings only.¹⁴ Table 9 presents the adjusted wage ratios. It is interesting to note that during the mid-70s, actual and adjusted relative wages converged as the women who remained in the labor

¹⁰ Japan. Statistics Bureau. *Japan Statistical Yearbook*. Tokyo, Japan Statistical Association, various issues.

¹¹ Yashiro, N. Male Female Wage Differentials—Rational Explanation. *Japan Economic Studies*, 1981.

¹² Osawa, Machiko. *Women's Skill Formation, Labor Force Participation, and Fertility in Japan*. Ph.D. dissertation (unpublished). Carbondale, Ill., Southern Illinois University, 1984. Chapter 4.

¹³ Tan, Hong. *Labour Market Adjustment in Japan in the 1970's: A Case Study*. (Unpublished paper) Adelaide, Australian National University, 1980.

¹⁴ For each year, the natural log of earnings for each cell is regressed on age, tenure, and dummy variables for sex, schooling category, and firm size. The exponential of the sex coefficient provides an estimate of women's adjusted relative wages. The results are reported in detail in my paper, *Women's Relative Wages in Post-War Japan*. *International Review of Comparative Public Policy*, forthcoming.

force appear to have been similar in measured characteristics to their male counterparts. In fact, the proportion of the female labor force who are new entrants has increased recently. This proportion has risen to 10 percent in 1982 from a steady 6 or 7 percent during the 1959 to 1974 period. The comparable rate for men is 4 percent.¹⁵ The stability in the unadjusted wage gap can be accounted for in part by the expansion of the female labor force with the entry of relatively less experienced women. After accounting for human capital and employer differences, women's adjusted relative wages appear to be rising. However, the adjusted wage gap remains large and, at 67.5 percent, approaches the unadjusted ratio in the United States.

Table 9. WOMEN'S RELATIVE MONTHLY CONTRACT EARNINGS, REPORTED AND ADJUSTED

Year	(1)	(2) *
1966	0.5116	0.5894
1967	0.5070	0.5862
1968	0.5039	0.5738
1969	0.5034	0.5646
1970	0.5146	0.5656
1971	0.5273	0.5755
1972	0.5311	0.5611
1973	0.5222	0.5353
1974	0.5637	0.5631
1975	0.5499	0.5850
1976	0.5605	0.5811
1977	0.5473	0.5769
1978	0.5629	0.6103
1979	0.5610	0.6203
1980	0.5611	0.6358
1981	0.5617	0.6413
1982	0.5610	0.6449
1983	0.5630	0.6417
1984	0.5585	0.6446
1985	0.5620	0.6450
1986	0.5694	0.6532
1987	0.5749	0.6753

* Adjusted relative wages account for male-female differences in age, tenure, education, and size of firm.

Source: All monthly earnings data derive from the Basic Survey of Wage Structure, as reported in *Japan Statistical Yearbook*, various issues. These data exclude bonus payments.

While wage discrimination on the basis of sex has been illegal in Japan since 1947, it was not until 1985 that the government enacted legislation mandating that women be offered equal employment opportunities as well.¹⁶ Recent legislation also overturned many of Japan's protective work rules including overtime restrictions and prohibition of night shifts, as well as statutes barring women from "dangerous or harmful" work. Sugeno¹⁷ reports that

¹⁵ Employment Status Survey data as reported in the *Japan Statistical Yearbook*, various issues.

¹⁶ For detailed descriptions of the Equal Employment Opportunity Law and its potential implications for the female labor force in Japan, see Suwa, Yasuo. The Equal Employment Opportunity Law. Reprinted in *Highlights in Japanese Industrial Relations*. Volume II. Tokyo, The Japan Institute of Labor, 1988; and, Edwards, Linda N. Equal Employment Opportunity in Japan: A View from the West. *Industrial and Labor Relations Review*, no. 41, v. 2, January 1988, p. 240-250.

¹⁷ Sugeno, Kazuo. The Impact of the Equal Employment Opportunity Law at Its First Stage Enforcement. Reprinted in *Highlights in Japanese Industrial Relations*.

some of the early effects of the implementation of these new laws include: elimination of sex-specific job advertisements; expanded recruitment of female, four-year college graduates; the equalizing of male and female retirement ages; and the introduction in many large companies of a two-track employment system, consisting of a "managerial" track and a "clerical" track. Sugeno further describes the managerial track as requiring comprehensive job rotation and transfers and having unlimited promotion possibilities, while the clerical track requires no transfers and limited job rotation but also limits upward mobility. There exists some concern that the managerial track will become "male" and the clerical track "female." Yet, the two-track system may in fact enable Japanese women to enjoy long-term employment. Whether and by how much these recent changes can close the gender pay gap and equalize the economic position of women in Japan remains a question to be answered during the coming years.

THE RECENT DECLINE OF UNIONIZATION IN POSTWAR JAPAN: A COMPARATIVE APPRAISAL

By Carl Mosk ¹

CONTENTS

	Page
Summary	267
Introduction	268
Deunionization: Employer Resistance in the United States Versus Structural Change and the Limits of Enterprise Unionism in Japan	268
Implications	273

SUMMARY

In contrast to Canada and a number of European countries, levels of unionization have been steadily declining in both the United States and Japan over the last two decades. For the United States, there is considerable evidence that this stems from growing employer dissatisfaction with the implications of unionism and hence with heightened employer resistance to new union formation. Are there similar forces working in Japan? If so, is Japan's highly touted reputation for consensus decision-making and labor-management compromise and joint decision-making breaking down?

In this paper, I argue that deunionization in Japan arises from a wholly different source than American deunionization: namely, from structural change. Unions in Japan, unlike those in the United States, are typically organized along closed shop enterprise lines. Hence, they have a vested interest in promoting firm output and market share growth because this encourages firm employment growth and hence growth in union size. As a result, Japanese unions tend to accept collective bargaining principles which tie wage growth to achieved and anticipated productivity growth and take a long-term view which encourages worker investment in skill formation which in turn raises worker productivity over the long run. While this makes them less threatening to management than industrial unions organized along Western collective bargaining lines, it means that they have a difficult time organizing the small business sector and the rapidly growing service sector where labor turnover is high. Thus, enterprise unionism appears to have reached its organizational limits in Japan, and structural change is diminishing its over-all impact.

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INTRODUCTION

One of the most remarkable statistical similarities between the Japanese and American economies over the last two decades is the deunionization of labor. In contrast to Canada where the proportion of the labor force has been hovering at around 38 percent, or in even more stark contrast with Sweden where over three-quarters of the labor force was unionized in the mid-1960s and the percentage has continued to climb to almost 95 percent in the early 1980s, unionization in both the United States and Japan has been systematically declining, with some annual fluctuation, since the 1950s.² For example, unionization levels in Japan during the early 1950s were around 36 percent, but by the early 1980s had slipped to approximately 30 percent, and in 1989 were down around 26 percent. In the United States, unionization was about 33 percent in the early 1950s and has recently slipped to under 18 percent. Is this indicative of a deep-seated similarity between the role and functions of unions in the two economies and/or to the fact that union certification procedures in both countries are conditioned by the same basic legislation, namely, the National Labor Relations (Wagner) Act?

After a brief review of the evidence, this essay concludes that the causes of deunionization are fundamentally different in the two countries—specifically that tension between organized labor and management over wage gains has precipitated rising employer resistance to new union certification in the United States, whereas in Japan the decline in unionization mainly stems from structural changes in the composition of employment. This difference has important ramifications both for the way we look at recent changes in the two economies and for public policy, points I touch on by way of conclusion.

DEUNIONIZATION: EMPLOYER RESISTANCE IN THE UNITED STATES
VERSUS STRUCTURAL CHANGE AND THE LIMITS OF ENTERPRISE UN-
IONISM IN JAPAN

The basic premise of my analysis is that rising or declining unionization in market economies which recognize the right to collectively bargain and provide some legal guidelines within which new union certification takes place, can best be understood in terms of the costs and benefits of unions to employers and employees, and the costs to union organizers of running successful organizing campaigns. In Chart 1 are summarized what appear to be the most important costs and benefits to employees and employers in the United States, Japan and Canada, while in Chart 2 are summarized the most prevalent costs faced by union organizers.³

² For details on the estimates and the technical definition of unionization see Mosk, Carl. *The Rise and Decline of Unions in Postwar Japan*. Paper presented to the Japan Economic seminar and to seminars at the University of Alberta and the University of British Columbia, Spring 1990.

³ Charts 1 and 2 and the text discussion concerning them is drawn from my paper *Unions and Economic Structure: Unionization and Deunionization in Japan, Canada and the United States*. Victoria, University of Victoria, March 1990. This paper also provides a more complete discussion of my conclusions.

Chart 1. POSTULATED COSTS AND BENEFITS TO UNIONIZATION OF A TYPICAL PRIVATE ENTERPRISE IN JAPAN, CANADA AND THE UNITED STATES AS PERCEIVED BY WORKERS AND EMPLOYERS BY CATEGORY

Wage Negotiation

Workers: Unionization typically increases wages in all three countries. This is a net benefit to workers, but the pure union benefit is smaller in Japan than in the other two countries because union officials have a direct interest in maintaining company profitability and investment.

Employers: Net cost to employers occurs in all three countries. In Japan, employers face less of a problem since wage increases are tied to productivity increases through the bonus system and through shunto (Spring offensive) collective bargaining. The Canadian wage spillover effect is diminished with nationalization of most major unions.

Employment Security and Stability

Workers: Protection of job security is very important in Japan because of steep seniority-wage profiles, as are union efforts to raise mandatory retirement ages. In the U.S. and Canada, unionization tends to enhance the worker's voice and, hence, job retention rates.

Employers: Net gain in stability and retention is smaller in Japan than in the U.S. and Canada. But raising of the mandatory retirement age is considered to be a major cost in Japan. Thus, it is a net plus in the United States and Canada. In Japan, the union often assists the personnel office plan and carries out retrenchments and reorganizations, so it is a plus there as well.

Working Conditions

Workers: In Japan, the union polices the enterprise's adherence to the rigorous Labour Standards Law, thus helping to protect workers against undercompensated overtime work, risks of accident, undue line speed, and the like. U.S. and Canadian unions play a somewhat similar role. In all three countries, rising income per capita and increased government regulation and intervention reduce the utility to workers of this function.

Employers: Typically, this adds to company costs by raising overtime pay, and restricting managerial authority in all three countries. Net cost in all three countries.

Political Leverage and Representation

Workers: In Japan, unions are an important voice for workers at the national level since unions typically belong to national centers (e.g., *Sohyo, Domei, Chumitsuren*) which are allied with various opposition parties. But the impact on legislation is minimal, since local legislation is of very limited import, and the Liberal Democratic Party has a majority in the national Diet. Unionization of the government bureaucracy is a plus since it drafts most Japanese legislation. The NDP-CLC connection in Canada gives both national and local leverage. In the U.S. case, leverage has been the most important at the local level since early 1970s.

Employers: It is a direct cost to employers in Japan, but unionization of the bureaucracy is important. In Canada, the role of local government in investment projects gives unions more protection. It is less of a factor in the United States at the national level, but it has an impact at the State level, particularly in terms of legalizing unionization of local and State public employees.

Chart 2. COSTS OF NEW UNION FORMATION: JAPAN, CANADA AND THE UNITED STATES COMPARED

Category	Country		
	Japan	Canada	United States
Legislation.....	Most favorable at local levels. Reasonably favorable at national level..	Moderately favorable at both local and national levels..	Local level legislation highly variable, but existence of State laws hostile to unions weakens organizing campaigns everywhere.
Political conditions.....	Weak at national level where most important. But unionism entrenched in bureaucracy since 1950s..	Powerful leverage at both national and local level..	Since early 1970s, generally hostile national environment, and highly variegated pattern at local and State level.
Changing employment structure.	Major cost in Japan because mutual employer/employee gains to unionization much smaller in rapidly growing service sector than in manufacturing..	Reasonably stable structure since 1960s means this is not much of an issue..	Some impact on discouraging union organizing campaigns. Direct effect small.

Chart 2. COSTS OF NEW UNION FORMATION: JAPAN, CANADA AND THE UNITED STATES COMPARED—
Continued

Category	Country		
	Japan	Canada	United States
Union wage premium.....	Not such a problem here because of tying of productivity gains to wage gains in annual <i>shunto</i> bargaining..	Important but less crucial to costs than in U.S. because of strong locational rents due to energy and raw material availability and access to U.S. market..	Important item in cost picture. Fear of undue (i.e., non-productivity justified) wage hikes raises employer resistance points more rapidly in U.S.
Enterprise mobility between regions..	Not much of a factor. Most large corporations maintain headquarters in either Tokyo or Osaka and branches in many prefectures..	Locational rents and fairly even wage and union density levels across provinces means this is not a major problem..	Threat of moving to anti-union States does raise costs of new unionization, particularly since industrialization of South after mid-1960s.
Aggregate economic policy/exchange rate..	Less of a problem here because union has interest in maintaining enterprise profits and potential for growth..	Locational rents countervailing but potentially important..	Overvalued U.S. dollar exchange rate put strong pressure on U.S. companies. Raised costs to new unionization.

Canada is included here in the discussion as a check: because there are many similarities between Canadian and American unionism, because Canadian unionization has not declined as American unionization has, and because including Canada helps us to more accurately pinpoint the forces which appear to be driving down American unionism.

The basic points in Charts 1 and 2 are self evident from a reading of the charts so I will only expand on those points that seem most important:

(1) Wage-productivity bargaining in Japan: Most Japanese unions are closed shops organized along enterprise lines which award "permanent employment" (no lay-off or firing until compulsory retirement is reached) contracts to regular (i.e., not temporary or part time) workers. Thus, a typical Japanese union expands its membership when and only when the firm expands its share of the market and/or is profitable and hence better positioned to grow and, hence, can hire more regular workers. As a result Japanese unions take a long-run perspective and directly stand to benefit from productivity growth and worker skill acquisition. Thus, the union tends to accept an approach which ties productivity gain, already achieved and/or anticipated, to wage increase and are fairly flexible on wage issues. On the other hand, they have a vested interest in low turnover because of their long-term strategy and fight tooth and nail to make sure workers are not unfairly forced out of the firm by coercive measures designed to elicit quits.

(2) Greater stress on wages, less on job protection, in North America: In the North American setting, the relative costs and benefits of wage increases versus job security protection are reversed. Firing according to inverse length of job seniority is possible and allowable under the typical implicit contracts in the United States and Canada, and laws restricting compulsory retirement are in place in the United States. Moreover, unions are organized along craft or industrial lines so security within

a firm is far less important than security within the industry as a whole. So, while job security issues are not inconsequential in North America, the major source of friction between union and management is the over the negotiated wage increase and the size of the so-called union wage premium. During the 1950s and 1960s when labor productivity was growing rapidly in all the industrial countries, this was not such a problem, but since the early 1970s, and especially since the 1973 oil crisis, the union wage premium and wage increments not explicitly tied to productivity gains have become a major irritant. In effect, under the slow productivity growth conditions of the post-Oil Shock era, Japanese unions have been more flexible in terms of wages and the tying of wage gains to productivity gains and hence are less costly to their firms than are North American unions. In contrast to Japan, this has raised the resistance level of non-unionized firms in North America to new union certification.

(3) Costs of new union formation: Despite similar legislation governing new union certification in Canada and the United States, union organizers in the United States face higher costs to union certification than do organizers in Canada. Chart 2 suggests that political factors and the effectiveness of the threat of moving to another State or province are different in the two countries, and as a result, Canadian organizers have an easier time than do American organizers. In Japan, the main reason that costs to union organizers have increased is structural change, not employer resistance *per se*. During the last decade and a half, there has been rapid shift in employment distribution out of heavy manufacturing and into services, and a related shift from larger firms to smaller firms, in terms of the distribution of employment. But the service and/or small firms, in general, have relatively high turnover. Moreover, many firms have tried to save on costs by hiring temporary and part-time workers. As a result, Japanese union organizers who have built their strategies around enterprise-specific, closed-shop principles with regular employees as their touchstone find it increasingly difficult to organize the firms which are now either just entering the market and/or growing unusually rapidly.

The basic lesson of these three propositions is that new union creation is declining (and hence, unionization levels) in both Japan and the United States because of rising costs of certification, but the sources of these rising costs are different in the two economies, with union-management friction much more apparent in the American case. In a study of unionism in the United States, Richard B. Freeman has convincingly demonstrated that structural shift out of heavy manufacturing is not a major factor in the American unionization decline. Rather it is primarily a falling off in the rate at which new union members are won through National Labor Relations Board (NLRB) elections which is the decisive factor. The

union members won through NLRB elections are shown in table 1 below.⁴

Table 1. UNION MEMBERS WON THROUGH NLRB ELECTIONS

Year	Workers Won (1,000s)	Year	Workers Won (1,000s)
1950.....	754	1970.....	301
1955.....	343	1975.....	204
1960.....	286	1980.....	173
1965.....	316	1983.....	91

Freeman also makes a compelling case for the notion that the rising union wage premiums in the private sector were decisive in encouraging employers increasingly to wage anti-union certification campaigns. To which I would only add that the friction was not just around the wage premium *per se* but around management fears that wage increases would not be matched by labor productivity increases.

What about Japan? In a lengthy technical analysis, I have found:⁵

- Unionization levels (defined in terms of the proportion of regular workers who are union members) have been remarkably stable over the last four decades both within sectors and within subsectors of manufacturing;
- Structural shift from high-unionization sectors toward low-unionization sectors accounts for much of the decline in overall Japanese unionization;⁶
- New union creation levels have declined as well—at least, partly due to the structural shifts in employment.

The main impact of structural shifts in Japan has been to shift employment away from manufacturing and towards services, but even within manufacturing, structural changes have had adverse effects on unionization. For example, table 2 shows unionization levels cross-classified by employment growth rates in the five-year periods 1965–69 and 1975–79 for the twenty subsectors of manufacturing. The manufacturing subsectors were first ranked according to their employment growth rates. They were then divided into four groups, and the average employment growth rate for each quartile was computed. The averages for unionization levels for each quartile were then determined.

Note that in the 1965–69, high-growth period, there is no obvious correlation between growth rates and unionization levels. Both the second highest and the bottom groups were highly unionized. In the second period, however, right after the Oil Shock, the heavily unionized subsectors tended to have the slowest employment

⁴ Freeman, Richard B. Contraction and Expansion: The Divergence of Private Sector and Public Sector Unionism in the United States. *Journal of Economic Perspectives*, v. 2, no. 2, Spring 1988. p. 63–88.

⁵ See the papers cited in footnotes 3 and 4 above.

⁶ Freeman and Rebeck find less of a structural shift impact on overall unionization in Japan than I do, but they, too, do find a significant impact. As does most of the Japanese literature, some of which is listed in my two papers cited in footnotes 3 and 4 above. See: Freeman, Richard B., and Mark E. Rebeck. *Crumbling Pillar: Declining Union Density in Japan*. Working Paper 2963. Cambridge, Mass., National Bureau of Economic Research, May 1989.

Table 2. UNIONIZATION LEVELS BY EMPLOYMENT GROWTH RATES IN JAPAN'S MANUFACTURING INDUSTRIES

1965-69			1975-79		
Quartiles	Employment Growth Rates	Unionization Levels	Quartiles	Employment Growth Rates	Unionization Levels
Top	8.8%	38.9%	Top	2.3%	38.2%
Second	4.8	52.9	Second	-0.25	25.8
Third	3.1	27.3	Third	-1.7	59.2
Bottom	0.6	54.4	Bottom	-4.9	59.5

growth (largest employment decline). The third and bottom quartiles had both the slowest growth in employment and the highest unionization rates. In this sense, structural change within manufacturing itself, along with shift out of manufacturing, was detrimental to unionism in Japan.

In sum, this analysis suggests that deunionization in the United States is most prominently associated with growing friction between organized labor and management over wage-productivity issues, whereas Japanese deunionization is much more a result of structural change in the context of closed-shop, enterprise unionism.

IMPLICATIONS

As for some general implications from this analysis, first, the similarity in numbers between American and Japanese deunionization is only statistical. The underlying causes are quite different. In particular, there is no evidence that the labor-management consensus in Japan which marks out Japanese labor relations as unusually cooperative and flexible is breaking down or becoming more adversarial, as they are in the United States. Second, the arguments about tying wage gains to productivity gains may be useful to American legislators at both the Federal and State levels, as well as to mediators, in thinking about how to encourage a reshaping of American labor relations with an eye to making them more consensual. Finally, the arguments advanced here help us to understand why large Japanese companies, which are typically unionized in Japan, go out of their way to locate their American subsidiaries in states where the unionization levels are low. What they fear is not unionization *per se*, but rather North American style industrial unionism, with its implications for union wage premiums and a delinking of wage growth to productivity growth.

V. SCIENCE AND TECHNOLOGY

ASYMMETRIES AND POTENTIAL COMPLEMENTARITIES: SCIENTIFIC AND TECHNOLOGICAL RELATIONS BETWEEN JAPAN AND THE UNITED STATES

By Martha Caldwell Harris ¹

CONTENTS

	Page
Summary	275
Asymmetries in Science and Technology	276
Status of Science	276
Industry as the Driver of Japanese R&D	278
Long-Term Strategies and Impacts	280
Challenges for the U.S. Corporate Sector	282
Possible Approaches	284
Appendix. U.S. and Japanese Strengths and Weaknesses: National Policies and Science and Technology Capabilities	287

SUMMARY

The United States and Japan are two leading countries in areas of science and technology. These two countries also present striking contrasts—differences in fields of scientific and technological strength and weakness, in the organizations that generate new knowledge, and in their impacts on the global market successes of firms. These differences can be seen as asymmetries that reflect structural differences in the research and development (R&D) systems of the two countries. These asymmetries may be either the source of growing disparities in economic well-being or stimuli for new types of mutually beneficial sharing. A careful look at the asymmetries leads us to the conclusion that, unfortunately, the former outcome will be more likely than the latter unless new policy approaches are developed by private sector as well as government leadership in both countries.

Understanding the nature of the asymmetries is a prerequisite for developing possible solutions. The complexity and the dynamic nature of scientific relations between the United States and Japan

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This paper reflects insights from the deliberations of the National Research Council's Committee on Japan, chaired by former Secretary of Defense Harold Brown, and discussions with Frank Press, President of the National Academy of Sciences. The Committee on Japan advises the Office of Japan Affairs in its programs and considers policy issues surrounding a changing U.S.-Japan relationship, particularly in science and technology. This paper was originally prepared at the request of the U.S.-Japan Commission for the 21st Century.

make this a difficult and urgent task. The organizations (corporations, universities, government laboratories, and policymakers) that plan for and carry out scientific and technological development are adjusting in response to new challenges, but institutional change often lags behind the pace of economic and technological change. This paper examines some of the asymmetries in science and technology, identifies challenges for the private sector, and suggests approaches to meeting these challenges.

ASYMMETRIES IN SCIENCE AND TECHNOLOGY

While both science and technology advance with new knowledge, a thorough understanding of their roles in the U.S.-Japan relationship requires that we consider each in turn. Technological know-how is specific to a particular company or organization; science involves research in comparatively open organizations, universities in particular. Scientists are part of a global community which thrives on the free exchange of new research results, usually in scientific journals, while technological development is geared to producing new products and services (therefore) seen as proprietary. Scientific advance makes important contributions to economic dynamism over the long term, but often in ways that are difficult to measure precisely. Technological development, if coupled with the right enabling policies, can lead directly to commercialization and expanded sales and revenues.

STATUS OF SCIENCE

It is in the performance of scientific rather than technological research where the contrasts between the United States and Japan are most apparent. Japan's relative weakness in science has been acknowledged by Japanese leaders. American scientists continue to publish about five scientific papers for each paper published by a Japanese scientist. The results of a recent study show that Japan's share of publications in the world's most important journals was about 7.5 percent in 1984. In every scientific field surveyed, Japanese contributions were dwarfed by those of the United States, but Japan's contributions are growing and are particularly strong in some areas (chemistry and physics).² The articles authored by Japanese scientists are not, however, cited as often as those authored by Americans. The growing share of citations of Japanese articles in recent years suggests that the contributions of Japanese scientists will become more apparent in the next decade.

Japan's current weakness in scientific research can be traced to the Japanese university system. Japanese universities are undergoing change, but they are still organized around the *koza* (chair) system which rewards seniority rather than young talent, with funding allocated for the most part on a rather rigid basis. The equipment in most university laboratories does not compare with that in Japan's corporate laboratories. Japan produces fewer Ph.D.'s with proportionally more in engineering than does the United States. There are, of course, exceptions to the general pat-

² See report to NSF by Francis Narin and Dominic Olivastro, *Identifying Areas of Leading Edge Japanese Science and Technology*, April 15, 1988.

Table 1. U.S. AND JAPANESE SHARES OF WORLD SCIENTIFIC PUBLICATIONS

	(Citation Rates)	
	1973	1983
Japan		
Percent of all papers.....	5.01%	7.34%
Percent of all cites.....	3.62	6.37
United States		
Percent of all papers.....	38.95%	37.03%
Percent of all cites.....	53.47	50.36

Note: The authors also use a citation index for the papers in the top 10 percentile of citations worldwide and conclude that "while the Japanese citation performance is improving steadily, their scientific performance is far below their technological performance; scientifically, Japan does not have nearly the presence or impact that it has in technology." p. 84. According to NSF data, Japan contributed 7.7% and the United States 35.6% of the world's scientific and technical literature in 1986.

Source: Narin, Francis, and J. Davidson Frame. *The Growth of Japanese Science and Technology*. Science, v. 245, August 11, 1989. Tables 30 and 31.

tern of weakness in Japanese university research, including a good deal of variation across fields. World class research is under way in some of Japan's inter-university research institutes established to overcome these problems.³

The status of science in Japan is more than an "academic" issue for Japan. Universities in Japan carry out the major part of the basic research, but their expenditures on R&D have declined steadily as a share of the total Japanese R&D effort (from 18.2 percent in 1970 to 12.7 percent in 1988).⁴ As a result, many believe that Japan's contributions to scientific advance (a worldwide "public good") have been relatively modest. In addition, foreign students and researchers make up a much smaller part of the total student and research communities in Japan than is the case in the United States. (There were 37,445 foreign students in Japan in 1988 while there were almost ten times that many in the United States during that same year.) Japanese statistics show that in 1988 there were more than 40,000 Japanese researchers and students in the United States while there were only 3,200 Americans in Japan for similar purposes.⁵ As junior and senior partners in research teams, Japanese researchers contribute significantly; the costs to the U.S. organizations of teaching and related support have not been calculated.⁶

Not surprisingly, Japan has come under strong criticism for lagging in its contributions to basic research and for the discrepancy between the numbers of researchers it hosts and sends abroad. While some interpret these data to signify that Japan has erected barriers that limit access by foreign researchers, the question is more complicated. Weaknesses in Japan's R&D institutions that are most accessible to the rest of the world (the universities) explain why Americans have not been motivated to go to Japan. But

³ See: National Research Council. Office of Japan Affairs. *Learning the R&D System: University Research in Japan and the United States*. Washington, 1989.

⁴ See: Japan. Kagaku Gijutsucho [Science and Technology Agency]. *Kagaku Gijutsui Seisaku Kyoku* [Science and Technology Policy Bureau]. *Kagaku Gijutsu Yoran* [Outline of Science and Technology]. Tokyo, 1990. p. 50.

⁵ Japan. Hommu Daijin Kanbo Shiho Hosei Chosabu [Ministry of Justice, Minister's Secretariat, Judicial System and Research Department]. *Dai 28 Deiri Kanri Tokei Nenpo* [Annual report of statistics of legal migrants]. Tokyo, 1989. p. 6, 63, and 137.

⁶ Tuition costs and fellowship monies do not cover the full costs of training.

there are other explanations. Up until quite recently, foreigners were not eligible for appointments to the faculties of Japan's national universities. Only a handful of American scientists and engineers, moreover, can speak and read Japanese.

Faced with criticisms, Japan's science policy leadership has responded with new programs in recent years. The best known is probably the \$4.8 million program designed to bring foreign science and engineering fellows to Japanese labs. New chairs have been created at Tokyo University for foreign professors. The Human Frontier Science Program, while initially criticized as vaguely defined, has evolved as Japan's first major international initiative in basic (life) science. Japanese national labs and government-supported basic research programs are attempting to recruit foreign researchers, and the Science and Technology Agency has launched a new program that will permit funding for foreign research facilities. While these steps are modest beginnings with more symbolic than substantive impact to date, they are significant, and Japan deserves credit for them.

These programs notwithstanding, additional efforts will be necessary to revitalize and open Japan's science establishment to the rest of the world. What is required is more than money—changes in the organization and culture of research are also necessary. To be sure, American technical personnel must study Japanese and be provided with incentives to “learn from Japan.” But it would be a mistake to expect that the old patterns of Japanese learning and American teaching can be changed quickly.

INDUSTRY AS THE DRIVER OF JAPANESE R&D

Other important asymmetries between the United States and Japan can be seen in technological development. Japan's R&D is industry-driven in the sense that almost 80 percent of the funding comes from industry. In both countries, industry is the major performer of R&D, but in Japan industry plays an unusually important role in funding (and thereby directing the targets) of the research.

It is not an exaggeration to say that Japan's R&D system has developed in the postwar period to lay unusual stress on research useful to industry. Japanese companies make some of the world's largest corporate R&D investments; Matsushita Electric alone invested Y334 billion (more than U.S. \$2 billion) in 1988 in R&D, a 23 percent increase over the previous year.⁷ Japanese companies, expected to make up half of the list of the world's top ten corporate R&D spenders in 1990, have made aggressive R&D a central part of their strategies.⁸ Corporate laboratories are well-equipped and staffed with some of Japan's best and brightest young talent. (Although Japan has a lower absolute number of scientists and engineers employed in industry than the United States, in 1985 Japan had 470 scientists and engineers for every 10,000 employees compared to 400 full-time equivalents in the United States.)⁹

⁷ *Daiyamondo*, September 16, 1989, p. 128.

⁸ See *High Technology Business*, November–December 1989, p. 15. For details of a report released by Schonfeld and Associates.

⁹ See: National Science Foundation. *The Science and Technology Resources of Japan: A Comparison with the United States*. Washington, 1988, p. 21.

Japanese corporations have technology-based strategies that feature continuing investments in R&D, even in periods of downturn. The strength of Japanese corporate R&D is in its integration with the production process. Management in Japan has created a system which provides incentives that reward engineers striving to commercialize new ideas. Most of this research is proprietary, of course. It is primarily accessible to outsiders through patents.

Japan has achieved unparalleled success in acquiring and further developing technologies that originate abroad, particularly in the United States. Japan has developed institutions, such as the Japan External Trade Organization (JETRO), and mechanisms (study missions for industrialists and technology monitoring by companies) over time and with considerable effort. Data collected by the Bank of Japan show Japan's technology trade balance continues to be in the "red:" Japan continues to import more technology than it exports.

Table 2. TECHNOLOGY TRADE BALANCES, JAPAN AND THE UNITED STATES

(Sales and Receipts for Royalties, Licenses, etc.; Constant 1982 U.S. Dollars)

	Exports	Imports
1970		
Japan.....	\$194	\$1,423
United States.....	8,625	2,503
1985		
Japan.....	725	2,437
United States.....	14,018	4,953

Source: National Science Foundation. *The Science and Technology Resources of Japan: A Comparison with the United States*. Washington, 1988. p. 54. Note that the statistics are based on reporting to the Bank of Japan.

Table 3. JAPAN/U.S. BILATERAL TECHNOLOGY TRADE

(Japan's exports to the United States Divided by Japan's Imports from the United States)

1988.....	0.36
1980.....	0.14
1977.....	0.07

Source: Japan. Kagaku Gijutsucho [Science and Technology Agency]. *Kagaku Gijutsu Hakusho* [Science and Technology White Paper]. Tokyo, 1988. p. 454-455. Note that the statistics come from the Report on the Survey of Research and Development. Management and Coordination Agency of Japan, 1989, p. 62.

There is no parallel in the United States to the laboratories of the Ministry of International Trade and Industry's (MITI) Agency of Industrial Science and Technology which was organized to enhance industrial strength as measured in terms of market competitiveness. In truth, the national laboratories operated by the Japanese government play a supporting rather than a directing role in this endeavor, but it is striking that some of them have an explicit mandate to carry out R&D useful to industry.¹⁰ In addition to developing policies that foster a conducive macroeconomic context for Japanese industry, the government plays a key role in nurturing

¹⁰ See: National Research Council. Office of Japan Affairs. *Learning the R&D System: National Laboratories and other Non-Academic, Non-Industrial Organizations in the U.S. and Japan*. (forthcoming)

industry-based cooperative research initiatives. Today, MITI bureaucrats act more like venture capitalists than directors who issue marching orders to companies. The government-sponsored cooperative R&D projects in Japan take various forms and have had uneven success. Some of the most successful involve research collaboration among different firms at a central laboratory, while the individual companies pursue in tandem the proprietary research that takes the research results to market.

Another divergence from the United States lies in the comparatively minor role of R&D for purely military purposes in Japan. The U.S. Government spends the bulk of its R&D budget (68 percent in 1985) on defense. In Japan, the R&D budget of the Defense Agency makes up only 4 percent of the total of all Japanese ministries. While the ostensible goal is not to perform research for military purposes, Japanese R&D in fields like semiconductors, supercomputers, and composite materials yields the potential for military as well as civilian applications. The difference is that government-funded R&D in Japan is first and foremost for civilian purposes. By continuing to pursue this approach, Japan will likely build strengths in a wide range of dual-use technologies important to military systems.

Japan's approach to R&D in the postwar period developed in the context of the security alliance with the United States. In a world where economic power is now recognized as critical to national security, Japan's R&D system is uniquely geared to developing technologies to be incorporated in high-quality products and services. Meanwhile, the United States finds its defense establishment increasingly dependent on components produced in Japan. In the past, there was a "spillover" from U.S. military R&D to the civilian sector in fields such as computers and airplanes, but today many question whether the United States can count on large defense budgets to spawn new industries or help existing ones.

LONG-TERM STRATEGIES AND IMPACTS

Japan has substantially increased its R&D investments over the past 20 years. Japanese R&D expenditures grew at an annual rate of 9.3 percent between 1965 and 1985 to reach a total of \$36 billion, while U.S. R&D investment grew at 2.5 percent to \$96.5 billion in constant dollars during the same period.¹¹ The rate of increase in R&D investment was particularly great during the 1980s.

Perhaps more telling is the rise in Japanese R&D investment as a percentage of GNP. The rate of growth in Japan's R&D investment has been higher than the rate of economic growth. Starting from a low base in the mid-1960s, Japan's R&D expenditure increased to a level (about 2.8 percent of GNP) that roughly matches that of the United States today. Japan's investment in nondefense R&D as a share of GNP is much higher than that of the United States (2.8 percent for Japan as compared to 1.9 percent for the United States in 1985).¹²

¹¹ NSF, *Japan's Science and Technology Resources*, p. 51.

¹² *Ibid.*

Japanese industry is the primary source of growth in Japan's R&D expenditures. The rate of growth in Japanese corporate funding of R&D far outstripped the growth in the government's R&D funding. Japanese company-funded R&D has exceeded U.S. company-funded R&D as a percentage of GNP since 1970.¹³ Japan's corporate R&D efforts are highly focused on developing commercial products. This process, however, can take years. Sony worked on VCR technology for twenty years before it reached maturity in the 1980s. Japanese companies have developed a corporate culture (a style of management and an incentive system for technical personnel) which rewards long-term R&D investments that pay off down the road.

These investments reflect "knowledge" as a priority in national policy, corporate strategy, and individual planning. Japan's educational institutions, with the help of families, produce highly technically literate high school graduates. This makes it possible for Japanese universities to concentrate their R&D expenditures on engineering—Japan produces as many engineering graduates as the United States.¹⁴ Almost one-third of Japan's college graduates find employment in manufacturing, most of them as engineers.¹⁵ Large Japanese companies emphasize on-the-job training of workers who are more likely than their U.S. counterparts to remain with the company.¹⁶ But many believe that U.S. engineers are better trained than their Japanese counterparts and that the United States has benefited from the participation of foreign technical personnel who are trained here and continue as career professionals.

At a national policy level, Japan has also set its goal on transforming the country into a "knowledge-based" society. MITI is only one of a number of Japanese government agencies involved in technology policy making, and one with a comparatively small budget. In the 1970s, MITI bureaucrats, working closely with private sector advisors, produced a "vision" for the 1980s which encouraged industrial restructuring toward knowledge-based industries. To cite one example of the shift, the number of researchers in the communications and electronics equipment industry increased from 38,830 in 1981 to 75,793 in 1988.¹⁷ It is also important to note that while Japanese government R&D programs have seen uneven success, they have supported continued work in areas like Josephson junctions and low temperature superconductivity when research in those areas was out of vogue elsewhere.

Many explanations can be given for these patterns. Japan's historically high savings rate (which reflects government policies as well as individual choices), the large size and vertical integration of Japan's largest companies, as well as government policies that for years encouraged technology imports while limiting foreign investment in Japan, are all factors that helped to shape the current re-

¹³ Ibid., p. 18.

¹⁴ See: National Research Council. Office of Japan Affairs. *The Working Environment for Research in U.S. and Japanese Universities: Contrasts and Commonalities*. p. 3 and 12.

¹⁵ Kagaku Gijutsucho, *Kagaku Gijutsu Yoran*, 1989, p. 156.

¹⁶ Competition for new technical talent has intensified among Japanese companies and there are growing concerns that more of the best and brightest will be attracted to the financial world.

¹⁷ Kagaku Gijutsu Cho, *Kagaku Gijutsu Yoran*, 1989, p. 71.

ality. Without attempting to explain the patterns of long-range investments in technical training and technology development, suffice it to say that these investments will have commercial payoffs down the road.

CHALLENGES FOR THE U.S. CORPORATE SECTOR

The challenge for U.S. companies is to maintain a leadership position in technology development and its use in quality manufacturing and global marketing. In order to achieve these goals, it will be important for management to value technological innovation, and to have the incentives to do so. The development and effective utilization of technological innovation is also affected by government tax and economic policies, and by trade, investment and security relations with Japan and other countries.

American corporations face a number of old and new challenges in competing with Japanese corporations. The predominant "strategy" followed by Japanese corporations has been to expand global market share by selling high quality goods at reasonable prices. This strategy has led critics to charge that Japanese corporations manufacturing semiconductors have used predatory pricing policies to expand market share. The issue of "dumping" in U.S. markets is complex, as the courts have imposed a heavy burden of proof on those who claim predatory pricing by Japanese competitors.¹⁸ There is no question that competition from Japan has forced a number of U.S. semiconductor makers out of the market in the past decade, regardless of continuing debate over the causes. In 1989, Japanese semiconductor manufacturers reduced prices sharply for 1 megabit DRAMS¹⁹ as new production lines come on for 4 megabit DRAMS. Intense competition among Japanese manufacturers, who have invested in state-of-the-art production facilities, finds a logical conclusion in brutal pricing "wars" that can squeeze out foreign competitors in global marketing battles.

American firms, meanwhile, continue to find it difficult to penetrate Japan's domestic markets. While the ostensible "barriers" to trade have now been lifted, U.S. corporations face a variety of obstacles that relate to structural differences in the way Japan's market is organized. Japan's distribution system is inefficient and complex. Foreign manufacturers of industrial goods must make unusual efforts to sell to large, integrated Japanese companies accustomed to dealing with domestic suppliers. U.S. corporations must adapt to different business practices based on extensive sharing of information between supplier and buyer. Price differentials between Japan's market and foreign markets are another cause for concern. Japanese government officials began an investigation in 1989 into the practices of a Japanese company suspected of using unfair trading practices to maintain artificially high prices for Apple computers.²⁰ A study by Japan's Economic Planning Agency

¹⁸ See: Fong, Ivan K., and John Kent Walker. International High Technology Ventures: An Antitrust and Antidumping Analysis. *International Tax and Business Lawyer*, v. 7, Winter 1989. p. 78, ff.

¹⁹ *Nihon Keizai Shimbun*, September 4, 1989. p. 13.

²⁰ *Nihon Keizai Shimbun*, October 4, 1989.

shows that many consumer items are priced much more cheaply in export markets than in the Japanese home market. The survey revealed that, on the average, consumer goods sell overseas at prices 40 percent below those charged at home.²¹

The challenges of tough competition from Japanese firms in global markets and the complexities of Japan's market system are now standard themes in discussions of U.S.-Japan trade. The rise in Japanese foreign investment, particularly in acquisitions of high technology U.S. firms, is a new challenge. Japanese foreign investment has grown sharply in the 1980s, and the United States is a major target. While many forms of foreign investment, such as purchases of U.S. Government bonds and securities, can be seen as beneficial from a U.S. perspective, there is more uncertainty about outright purchases of small, high-technology U.S. companies. In 1989, acquisitions of U.S. manufacturing companies by Japanese firms have increased. Smaller electronics firms and companies producing chemicals and related products are becoming attractive takeover targets because they have unique technologies. For large, integrated Japanese firms with high-valued yen and an urge to go global, such acquisitions make perfect sense.

From a U.S. perspective, an important question is whether joint ventures, acquisitions and other forms of collaboration between U.S. and Japanese companies will benefit or weaken U.S. R&D capabilities over the long run. Past experience suggests that R&D capabilities can be weakened when a company relinquishes manufacturing operations in the face of foreign competition. Over the long run, the effect of moving out of a manufacturing area may not only preclude reentry into the same area later but also may limit prospects for participation in related areas. In industries like semiconductors where a state of the art manufacturing line can cost \$300 million, "learning curve economics" give the advantage to large companies already in the market, particularly Japanese firms with the necessary capital to expand capacity and reduce unit costs. U.S. startup firms that introduce new products and processes may find it difficult to survive in such an environment.

A point of controversy is whether joint ventures and other forms of cooperation with foreign competitors ultimately spur a process of weakening U.S. technological strengths (by limiting the scope of R&D and manufacturing capabilities that take place in the United States) or whether they bring tangible benefits to the U.S. partner. Examples can be cited where Japanese acquisitions of ailing U.S. companies (steel firms) resulted in a new infusion of investment and technology that ultimately revitalized the American partner. However, in the case of small, high technology U.S. companies, there is a danger that the primary result may be to transfer technology that the U.S. partner would otherwise be unwilling to license to the foreign partner in return for short-term revenue increases that are not adequate or wisely used to establish a sound foundation for future innovation and market sales.²²

An alternative strategy available today primarily to large U.S. companies is to tap into Japan's R&D system by establishing pro-

²¹ *Nihon Keizai Shimbun*, September 26, 1989, p. 3.

²² See JETRO. *CITEC Newsletter*, September 1989. Comments by Abegglen.

duction and/or R&D facilities in Japan. Spurred in part by incentives provided in conjunction with the development of regional science and "education" cities in Japan, the numbers of U.S. firms announcing plans to establish R&D centers in Japan has increased in recent years. This is a major undertaking because the cost of setting up shop in Japan is high—in financial and human resource terms. Recruitment of talented Japanese personnel is a difficult (but not impossible) undertaking in the context of intense competition among Japanese firms for the best and brightest graduates.

U.S. companies will need to explore a variety of other avenues in order to learn from Japan, including licensing technology from Japanese firms, striking deals which ensure that the U.S. partner will be able to market products in Japan, and improving capabilities to monitor science and technology developments in Japan. This is much easier said than done. Fundamental changes will be needed to improve incentives to access and effectively use technology originating abroad, while at the same time improving cooperation and knowledge-sharing among U.S. firms. Costly investments required will pay off in the long run, but companies on the firing line of competition with Japan often are unable to make these commitments.

A review of the challenges facing U.S. companies in competing with Japan leads some to the conclusion that U.S. firms and organizations have been unfairly denied the benefits of the innovations they produced in years past (whether through one-way technology transfers of their own making or because of differences in markets and industry organization in the United States and Japan that make it difficult for the developer to reap the profits). The perception of imbalance in the exchange has been a major theme in recent public debates. Meanwhile, in Japan, there are signs that Japan's business leaders will be much more outspoken in their efforts to refute these charges and wield more clout in negotiations with foreign partners.

POSSIBLE APPROACHES

In the years ahead U.S. firms will face a new context in global competition. The role that Japan will play will be transformed from one where the competition is localized to particular industries such as steel, automobiles and semiconductors to a much broader and deeper competition. The United States and Japan will be engaged in competition across the board—from science to applied research to commercialization and marketing—in a wide range of industries.

In addition, it seems likely that fundamental or generic technologies needed for a wide range of industries will become increasingly important, as the lines between industries blur. Japan's science policy commentators argue that we have entered a period when "technology fusion," or the use of technologies from a wide range of industries, will be needed to stay at the cutting edge in the development of high-technology products. A major trend in recent years has been the diversification of R&D investments into new areas by some of Japan's largest companies in an attempt to position themselves to compete effectively in this new era. Meanwhile,

the globalization of business will continue in this context (barring unpredictable political changes that would limit this process), making it imperative that U.S. firms can compete abroad as well as maintain a strong base at home.

The combined effect of these changes may be to make it more and more difficult for policymakers to identify particular "industries" as targets of industrial (or competitiveness) policy. Maintaining scientific excellence will be more important as the lines between precompetitive and competitive research blur in fields like biotechnology and high-temperature superconductivity. The expertise of scientists and engineers alike will be required by companies and other organizations that want to stay in the game of advanced R&D. Support for fundamental technology development that has payoffs in a wide range of industrial applications is a theme that Japan has already taken up. If the efforts yield success, Japan's position will be strengthened across the board and Japan will present an even greater competitive challenge in new areas.

While it may be tempting at first glance to conclude that the best solution is to concentrate solely on building indigenous, U.S. strengths across the board, there are good reasons to question the wisdom of such an approach. The United States has the resources to independently support costly R&D investments, but it may be increasingly difficult to maintain unequivocal leadership in every area. Perhaps more importantly, no matter how much the government spends on R&D, wise private sector decisionmaking will be needed to maintain a competitive position in a wide range of products.

Japan has growing resources and expertise in science and technology that can contribute to global security and alleviation of problems in developing countries. As Japanese investment grows in the United States and vice versa, moreover, it will be increasingly difficult to distinguish American from foreign concerns. Faced with this complex reality, a pure "go it alone" strategy would be difficult to implement and likely counterproductive for Japan, in particular, but also for the United States.

What should the priorities be for the next decade in U.S.-Japan science and technology relations?

First, there are a number of global problems and scientific challenges that can be effectively addressed only through cooperative efforts. Scientific research in some fields depends on the construction of costly new facilities and equipment such as the Superconducting Supercollider and the space station. Working together will not be easy because questions of commercialization, military applications, and control must be addressed. Japan has taken the lead in developing the Human Frontier Science Program, which focuses on basic research in the life sciences. Over time, this program has evolved in the right direction as a true multilateral effort: the headquarters will be in Europe and researchers working in a number of countries will receive support for their efforts. The HFSP represents a new role for Japan in global science, one that should be welcomed and supported. At the same time, it should be remembered that the HFSP is a modest effort in comparison to U.S. funding of research in similar fields and that Japan will need to expand support to ensure that the program is more than symbol-

ic. There are many global problems whose solutions require scientific and technological research. Measures to counteract natural disasters such as earthquakes and floods are an important field where Japan can make a critical contribution to multilateral efforts.

Secondly, efforts can be made to ensure that U.S. organizations can and do participate in Japanese government-sponsored R&D projects. Participation in these projects can be expensive, in view of the high costs of locating personnel in Japan, but such experience can yield significant benefits in the form of learning how to operate in the Japanese research system. If this knowledge can be transferred to other U.S. organizations, it can be viewed as a larger social benefit that may justify support by a number of U.S. companies, universities and agencies. Japanese companies have long since perfected the ability to "team up" and share the risk of going into new overseas markets; this general approach may be worth considering as a means for improving U.S. capabilities to work effectively in Japan's research system. In this context, an understanding of Japanese technology policy—the process of long-term planning as well as the impacts—is essential.

Thirdly, we need to reexamine joint ventures and other linkages between U.S. and Japanese private sector organizations to ensure that there is a clear benefit to the U.S. side. We should look for results in terms of contributions to the U.S. economy and to U.S. technical capabilities. Joint ventures (and solely owned Japanese subsidiaries) that transfer technology and develop new skills in the U.S. workforce should be welcomed. Japanese manufacturers operating in the United States should be encouraged to use U.S. technology and components in their operations. U.S. companies should also press Japanese companies (and other organizations) to transfer technology to the United States. What is needed is much more than the mere purchase of patent rights, but an ongoing process of interaction that permits the American partner to learn about the innovation process in Japan.

In order to ensure that the growing technological linkages between the U.S. and Japanese private sectors produce benefits to the United States, we need a clearer understanding of which mechanisms have proved successful and why. At this stage what is needed is better analysis of the terms of the transfers (with an eye to the economic impacts) as a basis for developing a more coherent strategy for competing and cooperating with Japan. More specifically, this means attention to issues such as the rules of the game for foreign sponsorship of U.S. research and organizational design of collaborative R&D projects that involve universities, industry and government laboratories. The bottom line should be kept in mind: private sector linkages between the United States and Japan should produce real benefits to the U.S. economy that can be identified (in reducing the U.S. trade deficit, increasing jobs, improving the skills of the U.S. workforce, contributing to local community development).

Finally, efforts should be made to expand participation by U.S. companies and organizations in Japanese-funded aid projects in developing countries. Japan's aid program has grown rapidly in recent years, and the level of "tied aid" has been on the decline.

This should present new opportunities for U.S. organizations with expertise in development assistance, particularly technical assistance, to contribute to and participate in projects that receive support through Japanese government funds. The Japanese process of decision-making and bidding for contracts can be made more transparent to facilitate foreign participation. Such cooperation can benefit Japan as well as the United States by improving the quality of the programs and by eliminating the basis for allegations that Japan's aid program works only to Japan's commercial benefit.

We must recognize, however, that even if we address the priority issues identified above, significant problems will remain. We must call these problems out and articulate the concerns in a forthright fashion. The United States should not give up "core" technologies like semiconductors in the face of intense competition from Japan. Japan has a stake in the prosperity of the West and (therefore) an obligation not to put the high-technology industries of its major trading partners at risk of elimination. These principles should be communicated to and accepted by government and business in both countries.

The fact is that the United States and Japan must remain leaders in science and technology. Competition will intensify and deepen, but leaders in both countries will also have to work to ensure that both countries survive and prosper. Turning the asymmetries into complementaries will require energy, creativity and the attention of the leaders in both countries.

APPENDIX. U.S. AND JAPANESE STRENGTHS AND WEAKNESSES: NATIONAL POLICIES AND SCIENCE AND TECHNOLOGY CAPABILITIES

U.S. Strengths

- World's strongest science and technology base
- Research university system that permits open access by industry and researchers from around the world
- Mobility of technical personnel
- Large domestic market
- Geographically distributed and diverse research system
- Defense procurement that can be used to stimulate R&D
- Immigrants and minorities enrich the R&D system
- Management system that rewards "bottom line" success
- Flexible financing system, venture capital
- Wage rates similar to those in Japan
- Growing State leadership in technology development
- Institutional experimentation, particularly with industry-university cooperation

U.S. Weaknesses

- Technical illiteracy, particularly among younger workers
- Absence of integrated economic and technology policy
- Inadequate attention to global technological developments
- Macroeconomic problems: dual trade and budget deficits
- Inadequate incentives to reward long-term R&D efforts
- Weak links between industry and government
- Corporate culture that underrates production as opposed to financial expertise
- Comparative absence of attention to mechanisms to diffuse technical know-how and global market information among a large number of organizations

Japanese Strengths

- Dedicated and skilled work force
- Integration of economic and technology policy
- Strong incentives to reward efforts to develop and commercialize technology
- Proximity to rapidly expanding markets in Asia

- A complex market and distribution system understood best by Japanese companies
- A tradition of government brokering of foreign investment and technology transfer deals
- Ability of government and industry to work effectively together
- A widely held concept of economic security
- A society oriented to saving
- Emphasis (recently) on equity as opposed to debt financing
- World perspective on markets and competition
- Attention to quality control and detail in the production process
- Growing development assistance program
- Growing commitment to investments in science

Japanese Weaknesses

- A scientific base that may be inadequate to meet the challenges of the next century
- Weak university system
- Lagging investment in infrastructure, public facilities
- Aging work force
- Limited experience with transferring technology
- Slow growth of manufactured imports, particularly from Asia
- Inexperience of Japanese MNCs in fully integrating offshore operations with local communities
- Distance from Europe, geographically and institutionally
- Problems in integrating foreign workers and researchers into Japan's market and research systems

APPRAISING JAPANESE SCIENCE AND TECHNOLOGY

By Cecil H. Uyehara ¹

CONTENTS

	Page
Summary	289
Introduction	290
The Context	291
Multi-Technology Surveys	293
Japanese Surveys	293
U.S. Assessments	295
Comparative Technology Analyses	299
Policy Discussion	305

SUMMARY

For the first time, Japan has been described as a technological superpower by none other than the Committee on Japan of the U.S. National Research Council. The purpose of this essay is to comment on what we as Americans are telling ourselves about Japan's science and technology (S&T) through a review of: 1) assessments of U.S. and Japanese S&T in reports which include multi-technology evaluations as part of a broader study, and 2) through U.S. reports on selected technologies in Japan. So far, over 40 studies of the latter type have been identified. This is, perhaps, the first time that the United States has studied the technologies of one of its principal allies so extensively. (There is a third group of policy-oriented S&T studies relating to Japan which could constitute yet another category. However, they will not be covered in this report because of space limitations.) ²

¹ The author, President of Uyehara International Associates, Inc, Washington, D.C., is presently senior adviser to the Japanese Technical Evaluation Center in Loyola College, Baltimore, MD. The comments, assessments and recommendations made in this study do not necessarily reflect the views of Loyola College, or The National Science Foundation, the manager of the JTEC projects.

² Some of the U.S.-Japan related S&T policy related studies I have identified are as follows: 1981—The International Microelectronic Challenge by the Semiconductor Industry Association.

1983—International Competition in Advanced Technology: Decisions for America. National Research Council (NRC).

1984—Japanese Technological Advances & Possible U.S. Responses Using Research Joint Ventures. U.S. House of Representatives, Committee on Science and Technology. Challenges and Opportunities in U.S.-Japan Relations. U.S.-Japan Advisory Commission.

Industry-to-Industry International Armaments Cooperation: Phase II, Japan. Defense Science Board (DOD).

1986—Senior-Level Panel Calls for "Symmetrical Access" to U.S.-Japan High Tech Resources. National Academy of Sciences and National Academy of Engineering (NAE).

1987—Strengthening U.S. Engineering Through International Cooperation. NAE/NRC. Defense Semiconductor Dependency. Defense Science Board (DOD).

Continued

If Japan is a technological superpower, it would seem useful for the United States to create a dialogue involving the government, industry, and academia in formulating an S&T policy vis-a-vis that nation. Most of the studies comparing S&T in Japan and the United States make no recommendations for U.S. actions and policies.

INTRODUCTION

Without fanfare, through a thoughtful commentary, *Science, Technology, and the Future of the U.S.-Japan Relationship*, the National Research Council's Committee on Japan declared that at the core of the significant changes in the S&T relations between our two countries is "Japan's emergence as a technological superpower."³ The Presidents of the National Academy of Sciences and the National Academy of Engineering, in a letter to the Committee Chairman, urge that this analysis be widely distributed for discussion by policy makers, business and academic leaders in both countries. Unlike many other similar documents, this one is available in English and Japanese. As such, therefore, it is significant that, in the bilateral dialogue, the United States has been able to make such a "semi-official" pronouncement about Japanese technology. Although it is becoming more and more difficult to differentiate between the "scientific" and the "technological," this pronouncement was limited to Japanese technology.

This seems to be the first time, at least in recent years, that an ally of the United States has been so described. It is both significant and ironic that this appellation has been given to a non-European/American country which has been described as a nation perversely expert at mass production but lacking in genuine scientific creativity. One of the early comparative evaluations (by a panel of the National Research Council) on Japanese S&T appeared in 1982 and concerned computer science. The first and longest chapter was on Japan; it concluded that Japan has come from nothing to second only to the United States in twenty years, and that scant attention was paid by American scientists and engineers to Japanese technical literature on this subject. Japan has achieved the lofty status of a technological (and economic) superpower in a matter of only several decades.

Prior to this designation as a technological superpower, Japanese S&T had gradually become the subject of more and more studies, symposia, conferences, and hearings. They evaluated Japan's status and achievements in science and technology, what this meant for

1988—The Future of Electronics Assembly (NRC)
 The Defense Industrial & Technology Base DSB/DOD.
 Bolstering Defense Industrial Competitiveness. Under Secretary of Defense. DOD.
 Military Systems Applications of Superconductors. DSB/DOD.
 1989—A Strategic Industry at Risk. National Advisory Committee on Semiconductors.
 SEMATECH: Progress and Prospects. Advisory Council on Federal Participation in Sematech.
 A Report Outlining U.S. Government Policy Options Affecting Defense Trade and the U.S. Industrial Base. Defense Policy Advisory Committee on Trade.
 Defense Industrial Cooperation with Pacific Rim Nations. DSB/DOD.
³ U.S. National Research Council. *Science, Technology, and the Future of the U.S.-Japan Relationship*. Washington, National Academy of Sciences Press, 1990. p. 1. At about the same time, Senator Jeff Bingaman in a trip report of his mid-December 1989 visit to Japan, also declared that Japan should be treated as "the technological superpower it has become." He was admonishing the DOD to act accordingly. The trip report is dated February 9, 1990.

the United States, and what the United States should do in response. Hundreds of articles, numerous books and reports have been written on Japanese S&T issues.⁴ This author described and evaluated these activities in a paper, *U.S. Responses to the Japanese S&T Challenge*.⁵ The purpose of this essay is to expand on this paper to assess what we have found and what we are telling ourselves, rather than the Japanese. While we demand and at times succeed in our demands of Japan to "open up" Japanese society, the results which may accrue to our benefit, in the long run, how we change our ways—not Japanese ways—will decide America's economic performance, productivity, and trade balance. It is on this assumption that I felt it would be useful to comment on what we are finding in the many comparative analyses of U.S.-Japanese S&T. In the meantime, a brief note on the context.

THE CONTEXT

Contrary to U.S. trade relations with Japan, bilateral science and technology relations in the public sector have been among the most intensive and extensive of any two countries and have been described as a model for the United States to follow in its relations with other nations. In the private sector, U.S. corporations for many years after 1945 willingly sold every conceivable kind of technology of varying degrees of sophistication to Japan at bargain basement prices. These payments added billions of dollars to the bottom line of U.S. corporate ledgers. It appears, however, that little thought was given to the consequences of such actions, because U.S. companies assumed that probably nothing much would come from the uncreative Japanese in any case. Citizens in the United States maintained until quite recently a perception of themselves as being in a position of dominance and invulnerability vis-a-vis the rest of the world, let alone Japan. That indeed Japan would one day challenge the United States across the board in S&T issues simply did not enter into most of their collective consciousness, let alone calculations. Americans seemed to entertain an illusory sense of satisfaction until suddenly they were staring this challenge right in the eye.

Until the 1980s, S&T relations with Japan had led their own life of mutual satisfaction. In this decade, these relations became thoroughly woven into the trade and weapons system negotiations, reaching a peak of mutual recriminations in the debate over the co-production of the FSX, the next generation fighter support aircraft for the Japanese Self-Defense Forces in the later 1990s.

Most of the U.S. S&T agreements with Japan prior to 1980 had been fairly narrow. The possibility, however, of Japanese financial contributions to "big science projects" in the United States (among other reasons) prompted the U.S. to formalize its cooperative relationship with Japan in S&T. On May 1, 1980, the two nations signed the Agreement on Cooperation in Research and Develop-

⁴ For example, Justin Bloom in a recent unpublished study (December 1989), *Japan as a Scientific and Technological Superpower*, (225+ p.) provides a partial listing of almost 600 items.

⁵ This paper is included in the preprints (p. 87-111) of the 2nd International Conference on Japanese Information on Science, Technology and Commerce held at Berlin, October 1989.

ment in Science and Technology (TIAS 9760). Little, if anything, however, apparently has resulted from this agreement.

By the mid-1980s, there was an accelerating sense of unease about the "imbalance" of flow of S&T personnel across the Pacific and Japan's access to U.S. laboratories. There also was a much more acute recognition of the relationship between science and technology and U.S. military security, the trade balance, and the U.S. competitive position in the world. After an agonizing birthing process, in June 1989, the United States and Japan signed a new S&T agreement. It includes detailed arrangements concerning intellectual property rights and a superstructure for managing S&T relations. It is said to be a model for negotiations with other countries.

The American side felt that the "one-way" technology street had to be addressed. At the urging and insistence of the United States, the Japanese government and corporate laboratories have made it easier for the participation of foreigners in their S&T activities. In spite of this, the imbalance will probably continue for some time. The Japanese government has even given the U.S. National Science Foundation substantial sums to underwrite fellowships for American engineers to study in Japan. There will be some increase, but the institutional incentive arrangements in the United States need to be changed so that it is a plus on one's record to spend time in Japan. Going to Japan is still not regarded as being as prestigious as going to the United Kingdom or to Europe. While the U.S. Government has hammered at the Japanese ramparts, there is apparently no rush of American scientists to work in Japan on a long-term basis (six months or more).

The race of the tortoise and the hare might be used to describe this relationship. Japan accumulated knowledge, experience, know-how, and resources (human and financial) in the S&T area bit by bit, byte by byte. Gradually it dawned on some concerned Americans that, suddenly, Japan was challenging and potentially threatening their presumed preeminent position. While the U.S. racked up unprecedented trade deficits and became the world's greatest debtor nation, its relative—but not necessarily absolute power—position in trade, economic performance, and S&T exploitation had fallen decidedly in relation to that of Europe and Japan.

American frustrations in dealing with Japan, through a bilateral relationship which many have called the most important for the United States (at least in Asia, if not the world), stem from the fact that various steps taken by both sides, but mostly by Japan, do not seem, to the dismay and anger of Americans, to have changed our relative positions. Indeed, the situation seems to have worsened somewhat. Despite outward recriminations and irritations expressed by certain U.S. executive agencies and by Members of the U.S. Congress, even escalating to the possibility of a trade war between the two countries, there are constant reports in the press about strategic and tactical alliances, licensing agreements, mergers, and buyouts between U.S. and Japanese corporations. With rare exceptions, the large U.S. corporations are quiet, while the air between the two countries, ever so unfortunately, becomes more polluted with mistrust and disaffection.

This is, then, a brief background description of the context in which both sides began making comparative analyses of selected U.S.-Japan technologies and various kinds of policy analyses concerning Japan-U.S. S&T issues. These studies were carried out to arrive at a conclusion as to what the United States (as a nation, including industry, academia and government) might do in its own interests.

MULTI-TECHNOLOGY SURVEYS

JAPANESE SURVEYS

In line with their determination—one might say obsession—to catch up to the West, particularly the United States, the Japanese have been assessing their position vis-a-vis not only the United States, but also the U.S.S.R. and Europe. In 1982, for example, the Industrial Science and Technology Agency found 51 “key technologies” in which Japan was superior to the United States, and 56 in which Japan was inferior to the United States. Japan had a distinct lead over Europe at 57 to 29.⁶ In Japanese eyes, it appears that the United States had a precarious lead over Japan, with the Europeans trailing behind both countries. Based on table 1, prepared by the Industrial Bank of Japan in 1984, Europe also trailed but with the United States shared a superior position in several areas. The United States was still given a distinct upper hand, but shared a superior position in many instances with Japan. The Bank’s survey gave Japan its sole lead only in industrial robots, sensors, and fine ceramics.

The Japanese government began a series of surveys to explore from a long-term perspective the direction of future technological developments. So far, four such surveys have been prepared: 1970–71, 1974–76, 1981–82 and 1985–87. The latest survey was partially translated and published in 1988 as *Future Technology in Japan: Forecast to the Year 2015*, published by the Institute for Future Technology in Tokyo. This study does not provide any comparative analyses but does provide a Japanese assessment of the technologies expected to come to fruition between now and 2015.

At the behest of the Administrative Deputy Minister of the Ministry of International Trade and Industry (MITI), a semi-private report was prepared in mid-1988 by a group called Study Group for the Choices Facing Japan.⁷ It compared a list of technologies in both the United States and Japan. This comparison was a detailed two-and-half page list of technical areas. It was a composite evaluation combining a number of different sources as far back as the early 1980s. It is useful in that it was obviously used as a “think-piece” planning document in MITI in pondering future policies and actions. Table 2 was created by selecting technologies from this long list. It gave the United States a distinct lead in space, oceanography, energy, communications satellites, aviation, medicine, biosciences and CAD/CAM. It gave Japan a lead only in telecom-

⁶ Frost, Ellen S. *U.S.-Japan Security Relations in the 1990s and Beyond*. Prepared for the United States-Japan Advisory Commission. Washington, 1984. p. 28.

⁷ Japan. Ministry of Industry and Trade. *Nyu-Gurobarizumu e no Koken to Shin-sangyo Bunka Kokka no Sentaku: Nihon no Sentaku*. “Nihon no Sentaku” Kenkyukai. Tokyo, May 1988. 157 p.

munications, construction technology, fax/copiers, videotex, robots, and electronic manufacturing; in advanced ceramics, it gave Japan only an even position with the United States.

A similar survey was conducted by the *Nihon Keizai Shimbun* in 1989.⁸ It asked leading Japanese scientists to assess the present and what might occur by the year 2000 in four technical areas. The results of the survey are presented in table 3. A distinctly different picture appeared. The United States was given top ranking for the present in only two fields, computers and life sciences, Japan in one, opto-electronics, and Europe in one, new materials, a distinct change from earlier surveys. By 2000, the United States lead is expected to expand to three areas, computers, life sciences and new materials (overtaking Europe), and Japan will continue to be ahead in opto-electronics. The interesting feature of this survey is that it shows Japan improving its position but not overtaking the United States in all three areas where the United States is expected to lead.

Table 1. JAPAN'S COMPETITIVENESS IN HIGH TECHNOLOGY

	Japan	United States	Europe
Electronics			
Industrial robots	+		
CAD		+	
Computer Services		+	
Fixed Disk Drives		+	
Medical Electronics		+	
Sensors	+		
VLSIs	+	+	
Semiconductor production equipment	+		
CATV (service & equipment)	+	+	
Communication satellites		+	+
Videotex	+	+	+
New Materials			
Engineering Plastics		+	
High performance polymers		+	+
Fine ceramics (functional)	+		
Fine ceramics (structural)		+	
Amorphous alloys		+	
High purity silicon	+	+	
Gallium arsenide	+	+	
Biotechnology			
Plant factories		+	+
Bio-pharmaceuticals	+	+	
Bio-tech equipment		+	

+ indicates relative lead based on IBI researchers impressions.

Source: Industrial Bank of Japan, Industrial Research Department, September 1984.

In 1988, MITI issued its first *White Paper on Industrial Technology*. It compared the 1983 and 1988 levels of technology in Japan and the United States as portrayed in table 4. Note that this assessment concludes that Japan has equalled the United States in many technology areas over the five-year span and has even moved ahead in some. Unfortunately, the United States did not catch up with or surpass Japan in any field. Japan is, by this assessment,

⁸ *Nihon Keizai Shimbun*, February 21, 1989.

closing the gap, not only in applied research and technology, but also in basic research.

Table 2. MITI STUDY GROUP'S COMPARATIVE S&T EVALUATION

Space.....	×	Oceans.....	×
Nuclear power.....		Energy Resources.....	×
Communication satellites.....	×	Biotechnology.....	×
Information processing.....	×	Advanced ceramics.....	▲
Aviation.....	×	Medical.....	×
Environment.....	▲	Telecommunications.....	○ →
Construction Technology.....	○	Fax/Copiers.....	○ ↑
Videotex.....	○ →	Robots.....	○
CAD/CAM.....	×	Electronic manufacturing.....	○

Legend: ○ Japan ahead × United States ahead ▲ U.S./Japan equal ↑ Japan is slipping ↓ Japan moving ahead

Table 3. 1989 COMPARATIVE S&T SURVEY

	Computers Chips	Life Sciences	New Materials	Opto Electronics
1989				
United States.....	9.6	8.6	8.1	7.9
Europe.....	5.6	6.2	8.4	6.1
U.S.S.R.....	3.3	3.1	4.1	3.7
Japan.....	7.9	6.5	6.9	8.7
2000				
United States.....	9.3	9.3	8.5	8.5
Europe.....	6.7	7.1	7.7	7.0
U.S.S.R.....	4.3	4.3	4.9	4.6
Japan.....	8.8	7.8	8.2	9.1

Max = 10 points

Source: *Nihon Keizai Shimbun*, February 21, 1989.

Do these surveys reveal a "real" assessment or sense of continued deference toward the United States? Obviously, these kinds of surveys are used as a continuing goad to the Japanese themselves: we are still behind, we must strive further, we must strive and try harder. From the U.S. point of view, it does include the implications of a decided determination and evaluation that the gap is being closed at an uncomfortable rate.

U.S. ASSESSMENTS

In the United States, in contrast with Japan as described above, similar kinds of assessments are often conducted by the Department of Defense. In a September 1984 report by the Defense Science Board which endorsed U.S. and Japanese company-to-company cooperation, many Japanese "dual-use technologies" were listed as "of current interest" to DOD presumably meaning, in ordinary language, that the Japanese are abreast of or ahead of the United States in these areas: gallium arsenide devices (microwave, high-speed logic), microwave integrated circuits, fiber-optic communications, millimeter-waves, sub-micron lithography, image recognition, speech recognition/translation, artificial intelligence (knowledge-based computer architecture), electro-optical devices, flat displays,

ceramics (for engines, electronics), composite materials, high-temperature materials, computer-aided design, and production technology (including robotics/mechatronics).⁹

Another unofficial DOD working paper listed the following 11 areas (among foreign candidates of technological interest) of Japanese technology as being of special interest to the DOD: laser diodes (blue-green spectrum), transistors (high electron mobility), steel making (plate steel), robotics (production use), polymers (poly-vinyl flouride film), semiconductor packaging (RF power semiconductors), permanent magnets (non-cobalt), artificial intelligence, mass storage (optical/magnetic disk), semiconductor memory (EAROMs), and bearings (quiet, submarine). In the Military Critical Technologies List, the DOD found that the Japanese:

- Are clearly ahead of the United States in 6 technologies: computer systems and computer networks, computer hardware, industrial automation, materials, semiconductor and electronic components, and optical and low-energy lasers.
- Are in close competition with the United States in computer software, telecommunications, communications, navigation, guidance and control, vehicular technology, sensors, undersea systems, and chemical technology.¹⁰ There appear to be a number of inconsistencies between this list and that of the Japanese. Perhaps this is a reflection, not of the actual situation, but a rather nervous reaction and assessment by the DOD of a potential dependency on a foreign source for important technologies. More probably, it reflects a general narrowing of S&T between the United States and Japan in many technological areas.

Table 4. MITI ASSESSMENT OF U.S. AND JAPANESE TECHNOLOGY

Technology	1983		1988	
	Level of Technology	Technology Development Capability	Level of Technology	Technology Development Capability
Data Base.....	United States.....	United States.....	United States.....	United States
Semiconductor Memory Devices.....	equal.....	equal.....	equal.....	Japan
Computers.....	United States.....	equal.....	equal.....	equal
VCRs.....	Japan.....	Japan.....	Japan.....	Japan
D-PBX.....	United States.....	United States.....	equal.....	Japan
Microprocessors.....	equal.....	equal.....	equal.....	Japan
Laser Printers.....	United States.....	equal.....	equal.....	Japan
Copy machines.....	equal.....	equal.....	equal.....	Japan
Assembly robots.....	equal.....	Japan.....	equal.....	Japan
CAD/CAM.....	United States.....	equal.....	equal.....	Japan
Communications Satellites.....	United States.....	equal.....	equal.....	equal
Photovoltaics.....	Japan.....	equal.....	Japan.....	Japan
Aircraft engines.....	United States.....	United States.....	United States.....	equal
Skyscrapers.....	United States.....	United States.....	equal.....	equal
Advanced composite materials.....	equal.....	Japan.....	Japan.....	Japan
Fine ceramics.....	equal.....	Japan.....	Japan.....	Japan

Source: Japan, Ministry of International Trade and Industry. Trends and Future Tasks in Industrial Technology, 1988 White Paper (*Sangyo Gijutsu no Doko to Kado*). Quoted in *Technology and Competitiveness: New Frontiers for the United States and Japan*. New York, Japan Society, and Washington, Council on Competitiveness, 1990. This table was adapted from a chart on p. 37 of the MITI report.

⁹ U.S. Department of Defense. Defense Science Board. *Industry-to-Industry Armaments Cooperation, Phase II: Japan*. Washington, June 1984. 142 p.

¹⁰ Frost, *U.S.-Japan Security Relations in the 1990s and Beyond*, p. 28.

On October 13, 1986, *Fortune* magazine published a scoreboard on computers, life sciences, new materials and opto-electronics that compared the United States with Japan, Western Europe and the U.S.S.R. In each group (except life sciences), Japan was a relatively close second to the United States, at times an uncomfortable second.

Though not a comparative report, in November 1987, the National Bureau of Standards (Department of Commerce) prepared the first report on *The Status of Emerging Technologies: An Economic/Technological Assessment to the Year 2000*. It evaluated seven technologies: advanced materials, electronics, automation, biotechnology, computer, medical technology and thin layer technology according to what these technologies do new or better, to what products or processes they are applied, and by what major industries they are used. A significant and useful part of this unusual report is its description of ten generic barriers to achieving maximum economic benefits from emerging technologies. Nine out of the ten barriers were internal problems which the United States needs to solve. Only one barrier (restrictive policies in foreign markets) is aimed at foreign countries (and is not specific to Japan).

In a lengthy analysis of Japanese technology in 1988, B. Wysocki in *The Wall Street Journal*, mentions a study on semiconductors prepared by the National Science Foundation for the National Security Council.¹¹ It reports that the Chip War is being waged on 26 fronts; the United States is ahead in 6 battles, even in 6, and behind in 14. It noted that the United States was losing ground in 21 battles, not improving in any category, and holding its own in only 5.¹²

In accordance with a congressional edict, the Department of Defense prepared a *Critical Technologies Plan* in March 1989, which met with considerable congressional criticism that it was a DOD wish-list with no ranking of U.S. competitiveness in each technology and no analysis of areas in which the United States should depend on foreign technologies. DOD redoubled its efforts and submitted another report on March 15, 1990. This assessment of foreign technology capabilities is summarized in table 5.

It is unfortunate that this table does not include the United States, but it implies that Japan is at least equal to the United States in five out of twenty technologies. If the more directly military technologies are deleted, e.g., weapon system environment, the strength of Japanese technological capabilities is remarkable and awesome. NATO allies are not given maximum points in any area, but are close runners-up in seven. This evaluation again presents Japan as the United States' most formidable technological competitor and challenger.

Based on the above data, there has been a periodic comparative evaluation of U.S. and Japanese S&T in both countries. In Japan, this effort involved the government and the private sector, but, understandably, not the Japanese Defense Agency.

¹¹ Wysocki, B. Technology, the Final Frontier. *Wall Street Journal*, November 14, 1988.

¹² *The Semiconductor Industry, Report of a Federal Interagency Staff Working Group*. Washington, November 16, 1987. 58 p.

In contrast, the U.S. effort was basically government oriented and centered in the DOD. The Department of Commerce effort, while definitely praiseworthy, was a passive endeavor with little lasting impact. If it is correct that many, if not most, commercial and military technologies are converging as dual-use and will be vital to the continued security and industrial competitiveness of the United States, then the initiative should be justified and carried out as a civilian priority, not rationalized under DOD needs. This is particularly the case in light of the changing nature of the Soviet threat and if there is going to be a greater emphasis on the economic strength of a country than in the past. In order to focus the entire government—hopefully with the cooperation of industry—it appears that this kind of endeavor should be spearheaded by the White House, specifically the Science Adviser, but executed by the Department of Commerce and the National Science Foundation with the active cooperation of all Departments and Agencies.

In the same Congressional Appropriations Act for the Departments of Defense and Energy (P.L. 101-189) that required the preparation of the DOD Critical Technologies Plan, a small section mandates the creation of a "National Critical Technologies Panel." It is not insignificant that DOD must submit a "plan," while the Panel must prepare a report. This clearly reflects an ideological bias against anything that smacks of a "National Plan." A mere one and one-half pages is used to describe what the Panel shall do and three and one-half pages on what the DOD plan shall analyze. The national assessment report is to specify no more than 30 technologies while the DOD plan is limited to 20. No rationale is given in the law for this difference.

The DOD plan will be prepared each year, but the national critical technologies report is required every other year. The DOD plan, which will cover the 15 fiscal years following the year in which the plan is submitted, requires that R&D trends be specified, that DOD show how its R&D planning fits in with the assessments, that comparative assessments with other countries be made, and that its competitive position be analyzed. No such requirements are made for the national assessment.

Again, if the future U.S. position in the world is to be decided basically through economic and technological prowess, then the emphasis should be put primarily on the civilian national assessment and secondarily on the DOD plan. In a way, the DOD plan could be subsumed under the national assessment. At least the National Critical Technologies Panel is to consist of 13 people, 6 of whom will be from private industry or education and the remainder from the government. If this is still the response of the United States collectively (the government, industry, and academia), then the statement of Dr. Herbert Rabin, a physicist at the University of Maryland and former Deputy Assistant Secretary of the Navy for Research, Applied and Space Technology during the first Reagan Administration is still uncomfortably apropos. In 1987, he said to the House Science, Research and Technology Subcommittee that the United States is facing a crisis of major proportions to

which we are responding . . . inadequately.¹³ The crisis remains mostly unanswered.

Table 5. FOREIGN TECHNOLOGICAL CAPABILITIES

Critical Technologies	USSR	NATO Allies	Japan
Semiconductor Materials & Microelectric Circuits.....	1	2	4
Software Producibility.....	1	2	2
Parallel Computer Architectures.....	1	2	2
Machine Intelligence & Robotics.....	1	3	4
Simulation & Modeling.....	1	3	2
Photonics.....	2	2	4
Sensitive Radars.....	1	2	2
Passive Sensors.....	2	2	2
Signal Processing.....	2	2	2
Signature Control.....	2	2	2
Weapon System Environment.....	3	3	2
Date Fusion.....	2	2	2
Computational Fluid Dynamics.....	1	2	2
Air-breathing Propulsion.....	2	3	2
Pulsed Power.....	4	2	2
Hypervelocity Projectiles.....	3	2	2
High Energy Density Materials.....	3	3	3
Composite Materials.....	2	3	3
Superconductivity.....	2	2	4
Biotechnology materials & processes.....	2	3	4

Legend:

- 4 = significant lead in some niches of technology;
- 3 = generally on a par with the United States;
- 2 = generally lagging except in some areas;
- 1 = lagging in all important areas.

Source: Adapted from Critical Technologies Plan. March 15, 1990. p. 11.

COMPARATIVE TECHNOLOGY ANALYSES

The following table lists 36 published studies of selected Japanese technologies from 1981 to 1989; by the end of 1990, there will be another 6 reports, making a total of 42. At least 6 more studies will be begun in 1990, but their results will not be published until in 1991.

This is an unusually large number of specialized studies for one country to make concerning another's technologies. One could understand such a major effort by the United States of the Soviet Union during the Cold War years. In any case, most of those studies probably would have been classified and not readily available, and their purposes and objectives would have been very different.

Has the United States evaluated selected technologies of European Allies on this scale? If so, such an effort has not been publicized. Is this a reflection of a sudden, continuing and growing anxiety among Americans regarding the implications of the Japanese S&T challenge—many, for political, demagogic and emotional reasons? Is Japanese S&T being considered "a threat" to the U.S. preeminent position now and in the future?

There would probably be a very different U.S. reaction if this challenge rose phoenix-like from our European allies. Some anxiety might be expected, since at one time the United States depended

¹³ *Washington Technology*, July 23, 1987.

upon the basic science findings of the Europeans which we cleverly, thoroughly, and creatively researched and developed and used to create a world powerhouse of a consumer economy.

My thesis is that it was not in the scheme of American perceptions, *modus operandi*, and expectations that Japan, an Asian country, would phoenix-like rise up to confront the U.S. in the very areas of frontier technology in which Americans presumed they were almost invulnerably safe and supreme. It is, therefore, fascinating and ironic that the Americans who have so often labelled Japan with derision as a free rider on technology (and everything else for that matter) and lacking in creativity (defined, of course, in the Euro-American cultural context) now are conducting more and more studies not just of Japan's "mature" industries (e.g., steel and autos), but practically all the leading edge sciences/technologies. Since 1982, these studies have centered on the most advanced areas of technologies. Presumably, some recognition of Japanese creativity is implicit in this substantial effort to find out what they are accomplishing.

If these studies are read widely and their assessments truly appreciated, Americans would be forced to recognize that Japan's "mere incremental improvements" can be creative, and as they accumulate, they can and do make a substantial difference in manufacturing processes, labor productivity, and in product design.

Since many of these studies might fall into the category of U.S. gray literature and there is no focal point which keeps track of all these studies, there may be some not covered in this paper. If there is such a strongly felt need in the national interest—or is it in the interest of the functional responsibility of the funding institutions—to conduct so many studies of selected technologies of one country, is it not also sufficiently important to the national interest to have some designated focal point to gather and work with the studies? Would it not be important to have a focal point in the government or for a joint government/industry/academe effort to try to steer and coordinate these studies and attempt to arrive at a U.S. consensus of action by deriving lessons from these studies for national policy creation, direction, and enlightenment.

Except for several studies conducted by individuals, most of the studies were carried out by teams of technical experts usually from the government, industry, and academia. Except for the 1989 software study, the studies have been carried out with government or government-related funding: the Departments of Defense and Commerce, the National Academy of Sciences/National Research Council, the Office of Technology Assessment (of the U.S. Congress), the National Science Foundation (NSF) and the government-funded JTEC studies.

The JTEC studies were started by the Department of Commerce in 1983 under contract to the Science Applications International Corporation (SAIC) of McLean, Virginia. Later, this project was shifted to the National Science Foundation and funded from a combination of NSF and other Departmental resources, depending on the technology being evaluated. Loyola College of Baltimore, Maryland, became the contract manager and created the Japan Technol-

ogy Evaluation Center (JTEC) for this purpose. So far, eleven studies have been published with another six probable in 1990.¹⁴

As table 6 indicates, the earliest studies were conducted on what now would be regarded as rather mundane subjects: steel, automobiles, and electronics. Gradually, the number of studies conducted each year has increased, and the studies now cover only leading edge technologies (except for construction technology, which is regarded as a mature industry). Twenty-five technical areas have been covered by these studies. Two areas, superconductivity and advanced ceramics, have been studied four times; computers, biotechnology, and opto-electronics, three times; satellites, semiconductors, and factory automation, twice, and all others only once.

Have all the areas that should be covered been studied? This is not clear. There appears to be no overall coordination point for these studies in the government to prevent unnecessary duplication and to assure that all appropriate fields are covered. The only studies that appear to be coordinated are the JTEC studies begun in 1983. This is the only long-running and continuous series of evaluations of Japanese S&T. Funding availabilities in various executive agencies are decisive in carrying out these studies; specific departmental interests, naturally, therefore govern the choice of technical fields. This process may result in adequate coverage. But this method of funding emphasizes the need for a national assessment, coordinated by one agency which would establish the fields to be covered and decide priority, order, and funding accordingly. In light of national interests, including those of the private sector, this small incremental improvement in the management of JTEC studies seems to this author to be highly desirable.

There is a general feeling that in advanced ceramics, Japan is equal to or better than the United States and will remain so in the future; this is reflected in the four studies that have been done by U.S. teams. Yet according to a survey conducted for the Department of Commerce in 1988, U.S. research organizations do not devote a great amount of special attention or funds to collecting, analyzing, and using technical information from Japanese sources, despite Japan's accepted position in this technical field.¹⁵ In other words, by their own admission, U.S. researchers in this field do not pay close attention to their principal rival—at least they did not in 1988.

When a JTEC study on advanced sensors was carried out in 1989, 1,000 directors of U.S. sensor research and development were polled about their competition. Eleven percent responded. It appears that the industry does not currently see itself as being at risk in its competitive position with the Japanese. Perhaps the collective wisdom of the industry is correct, but the JTEC report pointed out "the fall from world pre-eminence and subsequent dissolution

¹⁴ Studies conducted by SAIC were referred to as JTech Reports, those under Loyola as JTEC Reports. For convenience, these reports will be collectively referred to as JTEC reports.

¹⁵ Bloom, Justin L. Supply/Demand Relationships for Japanese Technical Information in Research and Development on Advanced Technology in the United States. In *Preprints of the 2nd International Conference on Japanese Information in Science, Technology and Commerce*. Berlin, October 1989. p. 73-86. This presentation was based on U.S. Department of Commerce, *Survey of Supply/Demand Relationships for Japanese Technical Information in the United States: The Field of Advanced Ceramics Research and Development*. Washington, March 1988.

of the entire Radio Corporation of America (RCA) photo detection and photomultiplier operation [and that] this whole area of photon detection is now dominated by Hamamatsu.”¹⁶

Table 6. U.S.-JAPAN COMPARATIVE TECHNOLOGIES EVALUATIONS

1981	U.S. Industrial Competitiveness: A Comparison of Steel, Electronic and Automobiles (OTA)
1982	International Developments in Computers (NRC) The Competitive Status of [7] U.S. Industry (NRC)
1983	Satellite & Rocket Technology (J. Bloom)
1984	Commercial Biotechnology, an International Analysis (OTA) Computer Science (JTEC) High Technology Ceramics (NRC)
1985	Mechatronics (JTEC) Biotechnology (NSF) Biotechnology (JTEC) Opto & Micro-electronics (JTEC) Electro-Optics Millimeter/Microwave Technology (DOD)
1986	Telecommunications (JTEC) Advanced Materials (JTEC) Advanced Processing of Electronic Materials (NRC) Japanese Opto Electronics Industry and its relationship to the SDI (H. Glazer)
1987	Advanced Computing (JTEC) Basic Research in Ceramics and Semiconductor Science at Selected Japanese Laboratories (DOE) Ceramics and Semiconductor Sciences (DOC) Electro-Optics and Millimeter Wave Technology (DOD) Japanese Construction Industry (UK)
1988	Computer Integrated Manufacturing & Computer Assisted Design for the Semiconductor Industry in Japan (JTEC) Advanced Ceramics (NAS) Commercializing High-Temperature Superconductivity (OTA) Photonics (NRC) ERATO Program (JTEC) Defense Industrial & Technology Base (DOD) Military Systems Applications of Superconductors (DOD) Factory Automation in Japan (DOD)
1989	Advanced Sensors (JTEC) Superconductivity (JTEC) Recombinant DNA in Japan (DOC) Basic Research in Superconductor, Ceramic and Semiconductor Sciences at Selected Japanese Labs (DOC and DOE) Japanese Manufacturing Technology (DOD) Japanese Software (ADAPSO)
1990	HDTV (JTEC) Propulsion (JTEC) Supercomputing (JTEC) Nuclear Power Generation (JTEC) Complex Composite Materials (JTEC) Construction Technology (JTEC) High Temperature Composites (TAT/DARPA)

While it is, of course, impossible to repeat the detailed evaluations here of each of the studies, it would be useful to cite a few examples, mainly from the JTEC studies.

- Mechatronics: Japan has three times the robots and is starting to lead in research.
- Micro-electronics: Japan is starting to lead in gallium arsenide R&D.
- Polymers: A national strategy intends to make Japan the world leader by the 1990s.

¹⁶ JTEC Panel Report on Advanced Sensors in Japan, p. vii-viii. SAIC, January 1989.

- Telecommunications: Japanese components are now world's best, and are being used to make superior systems.
- Advanced Computing: ICOT has picked a particular approach to parallel computing and has made impressive progress.
- CAD/CIM in Semiconductors: Japanese CAD application is comparable to that in the United States. Their CIM is far ahead.
- HDTV: Japan's national strategy is to use high-definition TV as a vehicle for the next generation of consumer and commercial electronics. If Japan controls the markets for such products, it will be difficult for the United States to find niches for a viable electronics industry in telecommunications, integrated circuits, and computers.
- Superconductivity: Japan has a long-term commitment to superconductivity R&D and has selected this area as a flagship to show the world that it can be successful in fundamental scientific research. Low-temperature Josephson digital capabilities at four Japanese laboratories far exceed those at any U.S. lab, while the United States leads in analog superconducting electronics. Indeed, American firms already seem to be falling behind in commercialization.
- Construction Industry: developments now in train in Japan will change the construction world over the next decade as dramatically as the automotive industry changed when Henry Ford launched the Model T car.
- Biotechnology: Japan will be the most serious competitor of the United States in the commercialization of biotechnology.

Generally speaking, the evaluations reaffirmed that the United States does most of the basic research, but that Japanese basic research is now beginning to receive support and is becoming competitive in targeted areas; that United States and Japanese applied research are competitive, and that Japanese product engineering is superior.

There is one aspect of many JTEC reports which needs to be emphasized as a most useful tool for understanding a complicated evaluation. In the eyes of many technical experts, the following chart comparing computer integrated manufacturing is too crude a summary of a highly technical field. While this may be correct, such a chart is, nevertheless, a most useful and understandable tool for the non-expert (including most scientists/engineers once outside their specialized areas of expertise), manager, policy maker, writer, Member of Congress, or corporate executive. Such summaries should be a required part of all evaluations.

One further note is that in the workshops where the JTEC assessment teams report their findings, the interactions between the Japanese and American scientists and engineers has been excellent. This stands in stark contrast to the increasingly acrimonious accusations of the United States against Japan in issues dealing with trade and finance and the widening sense in Japan of being pushed around and blamed for all U.S. problems. Japanese cooperation with and accommodation of American visiting experts, moreover, has been very good.

The central purpose of the comparative analyses is to obtain a technical evaluation of the status of Japanese accomplishments in

CIM in Japan Compared to the United States

	R&D		IMPLEMENTATION	
	STATUS	TREND	STATUS	TREND
SYSTEM ARCHITECTURE	-	↗	>	→
IMPLEMENTATION OF FACTORY FUNCTIONS	0	→	>	→
IMPLEMENTATION OF BUSINESS FUNCTIONS	0	→	+	↗
ROLE OF MODELING AND SIMULATION	0	↗	0	↗
ROLE OF KNOWLEDGE-BASED EXPERT SYSTEMS	0	↗	0	→
MANAGEMENT OF CHANGE	0	→	+	→

Coding System - Japan Compared to the United States

PRESENT STATUS

- < Far Behind
- Behind
- 0 Even
- + Ahead
- > Far Ahead

RATE AND DIRECTION OF CHANGE

- ↑ Pulling Ahead Strongly
- ↗ Gaining Ground
- Holding Constant
- ↘ Falling Behind
- ↓ Losing Quickly

selected fields. Many of these analyses fortunately provide more than a strictly technical assessment. Many of the technical assessments also embody implied statements about how the Japanese execute a project and provide a guide to potential recommendations. For example, the JTEC Nuclear Power Generation panel's workshop pointed out that while the time required for Japanese nuclear power plant construction had increased from 48 to 60 months, the equivalent U.S. experience was from 60 to 135 months. The summary findings in the construction subtopic were: 1) effective cost control measures (constructive regulations and institutional issues, a high quality labor force, increased shop fabrication of components, a low rate of redesign, and a low rate of rework), 2) continuing construction allows timely introduction of new technology and builds experience and 3) larger, more aggressive R&D. These are not the normal technical findings.

Refrains made with monotonous regularity in the reports point out the Japanese long-term commitment, effective coupling of diverse technologies, R&D and device fabrication, greater investment in R&D, more methodical approach, that even a 3-percent better solution is rewarded in Japan, their obsession with quality control, significant commitment to company sponsored education and training, and company philosophy and loyalty. The JTEC advanced sen-

sors report commented that "both the highest level of U.S. research work and the associated highest technology U.S. sensing devices are unexcelled—but this work is largely irrelevant to the productive side of the economy."¹⁷

Some few reports have even suggested ideas for future cooperative projects between Japanese and U.S. scientists and engineers. These ideas could be used as potential projects for Japan-U.S. cooperation under the 1988 Science and Technology Cooperation Agreement. It would definitely be useful if technical experts were routinely requested to make not only technical and policy recommendations, but also, based on their observations from visiting Japan and their own experiences, to make recommendations on non-technical issues. The reports would be that much more valuable for management and policymakers.

Do these assessments imply that Japan is a technological superpower? This is not certain. But clearly, the United States must take Japan seriously. Judging by the two survey examples cited above, the apparent lack of use of these numerous reports in a coordinated and systematic manner by the Government or private industry and despite numerous consciousness raising activities, a nagging feeling still exists that, except for a relatively few concerned persons in and out of the Government and industry, there is no deep consciousness in the R&D community about the Japanese S&T challenge. Indeed, at several meetings where the JTEC reports were reviewed, the Team leader quipped sadly that you and I may read our reports, but others will not. The Japanese, however, will debate the implications of the reports in committee way into the night. An encouraging note, however, is that about 500 copies of various JTEC reports have been sold by the National Technical Information Services, mostly to U.S. buyers.¹⁸

Taken as a whole, these comparative analyses comprise an unusual body of information on Japanese S&T. If appreciated and used wisely, properly, effectively and constructively and their findings taken to heart by the United States, they could make a definite contribution to improvement of the S&T establishment. Unfortunately, there is scant evidence that this is the case. For the sake of U.S. national interests, it would seem that a major consciousness raising effort should be launched with a long-term commitment at the highest levels of the U.S. Government and industry. Even if large corporations already have all the necessary lines of communication out to their Japanese counterparts, it is hoped that that, for the greater interest of the United States, they could work jointly with the government to make this special endeavor a success. The Japanese, undoubtedly, take our comparative analyses most seriously.

POLICY DISCUSSION

The United States and Japan now seem to have an unusual opportunity, perhaps even an historic opportunity, to jointly make a contribution for the sake of the world and themselves. This oppor-

¹⁷ *JTECH Panel Report on Advanced Sensors in Japan*, p. vii.

¹⁸ Telephone interview by author of David Shonyo, Director, International Affairs, National Technical Information Services. April 10, 1990.

tunity is to maintain a "creative competitive tension" in science and technology as opposed to a non-creative, destructive tension, the direction in which the two nations seem to have been drifting in trade issues. The two countries could build on the still existing base of goodwill on both sides in S&T to push forward with a substantially enlarged scope of S&T cooperation based on an equal partnership.

If Japan is a technological superpower, it would seem useful for the United States to create a dialogue involving the government, industry, and academia in formulating an S&T policy vis-a-vis that nation. Such an effort could involve the President's Science Adviser, the Office of Science and Technology Policy, the Departments of Commerce and Defense, and the National Science Foundation. This dialogue among the government, industry, and academia could lead to an assessment of national critical technologies. Such an assessment would evaluate the present state of technology, but it could also be future-oriented by appraising the direction of S&T over the next 5 to 10 years.

Most of the studies comparing S&T in Japan and the United States make no recommendations for U.S. actions and policies. The politics of policy making, such as was evident in the decisions on funding for high-definition television, certainly make such recommendations difficult. Nevertheless, some wide-ranging effort to assess what these studies imply for U.S. policy would be useful.

In Congress, several bills have been introduced which touch on the above issues. For example, Senator John Danforth has proposed that the Secretary of Commerce identify annually in a report to Congress those industries or sectors which are critical to maintaining future U.S. economic security and global competitiveness and what the United States plans to do, if anything, to assist or encourage these industries or sectors to remain or to become globally competitive.¹⁹

Senator Jeff Bingaman has proposed that an Office of International Technology Monitoring be created in the Department of Commerce.²⁰ The Bush Administration has not yet indicated its response to this proposal. In 1986, however, when the bill to create the Office of Japanese Technical Literature was introduced in Congress, it was reluctantly supported by the Reagan Administration. After being signed into law, the Department of Commerce took almost a year to create the Office. While the law gave the Department a broad mandate, it chose not to exercise this mandate fully. In 1989, the Bush Administration downgraded this Office to a Program.

The mission of the National Technical Information Services (NTIS) also could be reinvigorated and redirected. Currently, the NTIS is provided no Federal appropriation, even though it seems a natural focal point for U.S. efforts to raise the consciousness of the S&T community about foreign technology and the value of exploit-

¹⁹ Senator Danforth submitted S. 1968 (101st Congress) on November 21, 1989 to amend the 1980 Stevenson-Wydler Innovation Act. It provides for an annual analysis of what industries or sectors are or are likely to be critical to maintaining future U.S. economic security and global competitiveness.

²⁰ Senator Bingaman introduced S. 2349 (101st Cong.) on March 28, 1990, to revise the Stevenson-Wydler Technology Innovation Act of 1980 to create this Office.

ing it. It could work jointly with industry and academia to disseminate foreign S&T information to American interests.

Japan has been asked by the United States and has contributed to U.S. science projects, particularly in big science. In order to cement the Japan-U.S. S&T relationship and emphasize that Japan is an equal partner in these endeavors, the United States might consider establishing large-scale scientific projects in Japan which are co-funded by the two countries.

And finally, more information is needed on U.S.-Japan private sector S&T relations. A comprehensive and systematic analysis of these interactions would contribute much toward understanding the deeply intertwined relationships between U.S. and Japanese institutions, organizations, and corporations in the S&T area.²¹

²¹ One study was conducted by Justin Bloom (a consultant) for the Department of State in 1983 for the Department's purposes. It did not receive wide circulation, however.

SCIENCE POLICY IN JAPAN AND THE UNITED STATES AS IT AFFECTS SCIENTIFIC AND ECONOMIC DEVELOPMENT

By David M. Flynn ¹

CONTENTS

	Page
Summary	308
Introduction	308
Science as It Affects Economic Development	309
School Systems.....	310
Pre-College Education.....	310
Universities.....	311
Government and Industry Funding of Research: Implications.....	315
Comparative Approaches to Research.....	315
Historical Perspective.....	316
Research Productivity.....	316
Government Sponsorship.....	317
Human Frontiers Science Program vs. Human Genome Project.....	317
Conclusion	319

SUMMARY

Science policy in Japan and the United States has direct and indirect effects on the economic development process in each country. This deliberate involvement of government organizations as part of a broader process of sponsorship, can create a climate conducive to continuous innovation in the society. This climate is created, in part, through the funding policies of government research agencies. Both countries have been attempting to overcome their shortcomings with regard to science policy. For example, Japan has increased the amount of academic and industry research collaboration. This paper considers the effectiveness of different levels of science policies on economic development.

INTRODUCTION

The role of science policy in economic development can be viewed from different perspectives depending on the unit of analysis. Herein, the focus will be upon science policy as the set of government programs, formal and informal, that either directly or indirectly affect inventiveness and more broadly innovativeness of the society. The societal entities include individuals, school systems, industrial organizations, universities, and the interaction of these entities.

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Previously, a comparative analysis ² of Japanese and U.S. organizations was undertaken with particular attention to the effect organizational and other institutional strategies have on innovation. In this paper, the importance of government policy in creating a climate conducive to innovative behavior of organizations is illustrated. For example, a more lenient antitrust policy helps organizations share the expense and risk of basic research. Basic research is distinguished from applied and development research on a continuum where basic research yields scientific breakthroughs and applied and developmental research creates new product extensions and improved products, respectively. Innovation can be viewed as scientific breakthroughs that expand the scientific frontier.

Science policy, as noted above, is the summation of all programs that are either explicitly or implicitly created to foster economic development through the scientific frontier. One can broadly define this process as a form of sponsorship. Sponsorship can be defined as the deliberate intervention by public and private organizations with the purpose of creating a more conducive environment for organizational birth and survival. Sponsorship has been shown to facilitate the emergence and survival of high technology firms in fourteen randomly selected regions in the United States. However, sponsorship alone may not be effective over the long term without a supportive infrastructure.³ Schmitt ⁴ noted the importance of infrastructure, especially for the growth of high technology firms. High technology organizations require a supply of technically trained employees and a high quality educational system. Infrastructure can be viewed as a measure of the richness of an area's resources that provide a conducive business climate for firms in selected industries. Among the critical factors of infrastructure for high technology companies are the availability of skilled labor, a low cost of living, and the close proximity of research universities. The university may be also be viewed as part of the sponsorship process through its use of government grants. The important roles served by the university in contributing to the scientific frontier will be discussed in a later section.

Over the last decade, science policy in both Japan and the United States has attempted to address its respective shortcomings to increase each country's industrial competitiveness and further economic development. In the following section, these changes will be identified to determine their effectiveness. In the next section, a conceptual framework will be introduced that elaborates on the interaction of the various societal entities as they affect and are affected by science policy.

SCIENCE AS IT AFFECTS ECONOMIC DEVELOPMENT

As a beginning hypothesis, science is posited to be the foundation for economic development. At its earliest stage, a new discovery in a scientific field leads to attempts of validation and replication.

² Flynn, D.M. Organizational and Environmental Effects on Innovation: A Comparison of Two Countries. *Asia Pacific Journal of Management*, v. 2, no. 3, 1985. p. 151-163.

³ Flynn, D.M. Sponsorship, Infrastructure and New Organizations: An Exploration of an Ecological Model into Fourteen Regions. *Frontiers of Entrepreneurship*, no. 8, 1988. p. 238-253.

⁴ Schmitt, R.W. Building R&D Policy from Strength. *Science*, no. 220, 1983. p. 1013-1016.

Upon replication, the new discovery/invention is introduced to the commercial marketplace generally through industrial organizations. These new inventions of products or services are then filtered through the organization's strategies to identify the best opportunities for these new inventions. The organization's success in the innovation process is finally tested in the marketplace by the product's or service's performance, e.g. rate of return on the investment.

The innovation process is affected at many levels. Initially, the propensity of a society to accept change in existing paradigms is based in its value system and perpetuated by institutions of the society.⁵ For example, individuals are affected, i.e., acculturated, as they attend schools and become members of organizations.

In the next section, an attempt is made to identify how the school systems of Japan and the United States differ. With these differences identified, we then identify how the school system then may affect the innovation process as the foundation of economic development for advanced societies.

SCHOOL SYSTEMS

Recently, the role of education was articulated as one of the primary forces for restoring competitiveness of the United States.⁶ Among the more important factors were pre-college education, better retention of majors in science and engineering, support of graduate education, adequate support for small science, and better interaction between universities.

Pre-College Education

One of the more important comparative studies about the differences in school systems in the Japan and the United States⁷ concluded that the cognitive abilities of the children of both countries are similar, as measured by their performance in reading and vocabulary. However, in evaluating the performance of the students in mathematics, the Japanese students were significantly better than the U.S. sample, especially in the fifth grade. These results were explained by differences in the active roles taken by the parents and teachers in the educational process. Specifically, Japanese mothers took a more active role in helping their children with their homework than American mothers. Whereas, American parents and teachers perceived homework to be of little value. The support given by teachers and parents may exemplify the values of the particular society.

Another interesting finding of this research was that the comparatively low math achievement of the American children was attributed to less time spent at school, i.e., one hour less each day and 178 days in attendance versus 240 days of the Japanese children. The number of days spent in school is an example of explicit government policy that may have a profound effect on achievement in science and technology (S&T). While science achievement is not

⁵ Nisbet, R. *History of the Idea of Progress*. New York, Basic Books, 1980.

⁶ Abelson, P.H. Science and Technology Policy. *Science*, v. 224, no. 4954, 1984. p. 421.

⁷ Stevenson, H.W., S. Lee, and J.W. Stigler. Mathematics Achievement of Chinese, Japanese, and American Children. *Science*, v. 231, no. 4739, 1986. p. 693-699.

measured explicitly, there may be some correlation between math and science achievement.

Although these results from early childhood education are favorable to Japan, the Japanese secondary school systems have their critics, especially Naohiro Amaya, a senior adviser to MITI.⁸ For example, he believes that secondary schools' emphasis is on methodical learning of facts, i.e., an emphasis on memory and math skills. However, it may be smothering creativity and independent thought. Mr. Amaya as a member of the Prime Minister's Commission on Educational Reform also accuses the juku (cram) schools of mass-produced education. Furthermore, the Commission has concluded that "rigidity, uniformity, and closedness [prevails] . . . through the imposition of excessive controls on students. The system is making a wasteland of childrens' minds. Students are not taught to think independently; they are not allowed to develop personalities or the ability to govern themselves; and they are not encouraged to be creative."⁹ As a result of this rigorous rote learning process, college may be viewed as a time to relieve stress from the examination process resulting in fewer students going on for graduate education. For example, 0.5 of 1000 versus 4.9 of 1000 inhabitants go on for graduate education, in Japan and the United States, respectively. The role of universities and especially graduate schools in furthering the scientific base is critical in providing a scientific infrastructure for future development.

An attempt to introduce some diversity into the existing educational system in Japan is the new international high school that opened in Komaba, Meguro Ward, on April 6, 1989.¹⁰ The Tokyo Metropolitan Kokusai High School has an enrollment of 247 students of various backgrounds. The school was founded with the aim of educating young people to have well-balanced international perspectives. It offers courses in intensive foreign languages, comparative cultural studies and communication science in the second and third year. Also, specially designed courses are available for those who wish to study at foreign universities after graduation. In order to help students enter college, preparation for entrance examinations for universities will be a part of the curriculum. However, as stated by the principal, Mr. Ohtaka, "We will encourage them to be active and acquire the necessary skills for the real world, not merely stuff them with pieces of knowledge."

Universities

The university serves critical roles as a part of the local infrastructure and also, as a vehicle of sponsorship, i.e., through the use of government grants and fellowships. For example, it has been reported recently by the U.S. Department of Education that other than tuition, Federal monies account for the largest source of revenue for doctoral degree-granting universities.

Universities fulfill important infrastructure needs, i.e., providing a technically skilled labor force as well as developing scientific

⁸ School Reformers Aim at Creativity. *Science*, v. 233, no. 4761, 1986. p. 267-270.

⁹ *Ibid.*, p. 268.

¹⁰ International High School Will Teach Students to Appreciate Difference. *Japan Times*, March 26, 1989. From Nihon Keizai Shimbun, Inc. (NIKKEI TELECOM) an online data service.

knowledge. The role of the university is multifaceted and critical to the emergence of high technology organizations. For example, scientifically productive scholars have been found to be more entrepreneurial. Also, higher levels of entrepreneurship were evident in universities receiving large research grants.¹¹

The importance of universities in providing scientists and engineers has been identified in both the United States and Japan. In the United States, due to many competing demands, including the attempt to balance the Federal budget, limited resources exist for maintaining leadership in the scientific community. Furthermore, demographic projections suggest that a serious shortfall of scientists and engineers may exist by the turn of the century unless corrective actions are taken.¹² For example, in order to increase the number of baccalaureate degrees in science and engineering, targeted financial assistance could increase the likelihood that qualified high school students enroll in four-year colleges. An even more critical area for concern is the expected shortfall of Ph.D.s in science and technology. Some have recommended that there be a substantial increase in federally funded fellowships and traineeships.¹³

Japan has attained world manufacturing leadership as a result of its engineers and scientists. However, a potential crisis comparable to that in the United States is possible. For example, because of lucrative salary scales and better chances of promotion, Japan's young engineers are signing up with fast-paced and profitable financial and insurance firms. This shift may represent structural changes in the economy from manufacturing to services not unlike other industrialized countries. However, it may undermine their economic leadership.

Recent statistics reveal that Japan's manufacturers are undeniably losing some top engineers. For example, in 1988, only 50 percent of the engineering graduates from Japan's universities who joined the work force went to work in the manufacturing industries, down from 66 percent in 1965. The actual decrease of 3,000 from the previous year was the first time that the number and the percentage dropped significantly during a time of strong economic growth. The producer sector is no longer Japan's most profitable nor its fastest growing. This distinction belongs to the banks, securities companies and insurance firms.¹⁴

The conclusion that can be gleaned is that the larger finance and insurance corporations are now targeting their recruitment at science and engineering students from the top schools. And the students are clearly receptive. An analysis of the history of leading industries in Japan tells us much about the connection between the recruitment of students and the internationalization of these industries. Whenever an industry is set to expand and go global, its best

¹¹ Louis, R.S., D. Blumenthal, M. Gluck, and M.A. Stoto. *Entrepreneurs in Academe: An Exploration of Behaviors Among Life Scientists*. *Administrative Science Quarterly*, v. 34, no. 1, 1989, p. 110-131.

¹² Atkinson, R.C. Supply and Demand for Scientists and Engineers: A National Crisis in the Making. *Science*, v. 248, no. 4954, 1990, p. 425-432.

¹³ *Ibid.*, p. 431-432.

¹⁴ Kodama, F. Moves of Top Talent in Japan Mirror Nation's Changing Economic Structure. *Japan Economic Journal*, May 27, 1989. From NIKKEI TELECOM.

and brightest young engineers and scientists are mobilized and lead the push towards internationalization. This pattern has turned up already in the textile, shipbuilding, trading and auto industries. The financial/insurance sector may be next.¹⁵ This shift however, may indicate a fundamental crumbling of Japan's economic leadership.

Another critical concern, similar to that in the United States, is the lack of a sufficient number of university graduates pursuing a Ph.D. in science and technology. Even though Japan has attained technological leadership in many fields, it has been achieved without a critical mass of Ph.D.s in science and technology (S&T). For example, between 1965 and 1975, the growth rate of science and engineering graduates did increase sharply at all levels, with the number of engineering bachelor's degrees awarded more than doubling and Ph.D.s in the field more than tripling. However, since 1975 the growth rates of engineering bachelor degree recipients and Ph.D.s have trailed off. At the same time, the number of master's degrees has risen rather sharply. Between 1975 and 1988, the number of engineering bachelor's degrees awarded rose 17 percent, of doctorates 26 percent, and of master's degrees 84 percent.¹⁶ Although the increases are encouraging, the probability that a master's degree recipient will go on to gain a PhD actually dropped to 6 percent from 10 percent in 1965. It has been suggested that the universities are increasingly incapable of developing their own candidates, given their existing research facilities.¹⁷ Also, since innovation is occurring at a high rate, university engineering departments may be having a difficult time keeping up.

Although both countries are facing crises in a shortage of human resources in science and technology, the potential for a crisis in Japan may be more acute. One may conclude this upon consideration of Japan's perspective that universities and industry should remain unaffiliated. The state universities are essentially satellites of the educational ministry, "*Monbusho*." The professors are considered civil servants and are not allowed to consult with industry. However, recent proposals for reform include increased mobility for faculty, more joint research with industry, more outside lecturers, and shortened time for graduate degree confirmation.

Some of the solutions implemented to date include off-shore sponsorship of university faculty. For example, Nippon Telephone and Telegraph Corp. (NTT) announced April 10, 1989 that it will establish a professorship at the Sloan School of the Massachusetts Institute of Technology (MIT), naming Professor Gabriel Bitran as the first NTT Professor. Professor Bitran currently heads the Management Science area of the Sloan School. The endowment, in the amount of \$1.5 million, is intended for research and education at MIT and in Japan and to conduct joint research with NTT.¹⁸

Also, Hitachi Ltd. established a laboratory at Cambridge University in the United Kingdom. Fujitsu Ltd. launched a forum in the

¹⁵ Ibid.

¹⁶ Kodoma, F. Dissertation Doctors Increase Rapidly as Japan Gains Edge in Technology. *Japan Economic Journal*, July 29, 1989. From NIKKEI TELECOM.

¹⁷ Ibid.

¹⁸ NTT to Endow Professorship at MIT. *Nikkei News Bulletin*, April 10, 1989. From NIKKEI TELECOM.

spring to exchange study results on artificial intelligence with 15 universities. The company wants to develop the forum into a research information network by establishing an on-line connection with universities.

Although these collaborations may turn out to be successful, some constraints exist that inhibit cooperation with non-Japanese firms. For example, Fujitsu Ltd. planned to set up private lecture courses at the University of Tokyo and MIT. MIT approved the plan immediately, and a computer communication course was launched with \$1.5 million supplied by Fujitsu. But the University of Tokyo turned down the idea, citing its regulation that allows only visiting foreign professors to conduct private courses.¹⁹

Fujitsu President Takuma Yamamoto said Japanese universities are unable to respond to industry demands for basic research because the schools lack the funds to undertake such studies. But, he acknowledges, even if enterprises offer the funds, the institutes are usually too bound by tradition to collaborate.²⁰ Some academics claim they lack the money to perform such research for industry. But more incriminating observers suggest that a bigger obstacle to such cooperation is the scholars' belief that any research ultimately used for the purpose of making money is not "pure" research.

More recently, the Science University of Tokyo, an elite private institution, made academic history by agreeing to affiliate with a government-industry venture. The laboratory was jointly established by Drug Delivery System Institute Ltd., a consortium funded by both the government and pharmaceutical firms, Ube Industries Ltd., and the non-profit Japan Research Promotion Society for Cardiovascular Diseases to conduct research on a new drug-delivery system. This is the first on-campus, corporate-funded research laboratory in Japan.

In opening the doors of its laboratories to corporate researchers, the university is departing from one of Japanese academia's traditions. The elite science universities of Japan have not only frowned on cooperating with industry in performing basic research, but have often balked at even sharing the results of their work with the business world.²¹

Other constraints on the success of university and industry collaboration that include the seniority-based assessment system may inhibit research productivity at the university. For example, Susumu Tonegawa, a Nobel Laureate in 1988, from MIT, stated that talented scientists have no choice but to leave Japan because of societal factors. He considers the more important constraints to be the acquiescence to authority, strict seniority, a stable but immobile work force and little debate. Some scientists live in mortal fear of offending elderly professors who are not productive but advise bureaucrats on where to direct grant money.²²

¹⁹ University Opens Lab to Corporate R&D Effort. *Japan Economic Journal*, August 5, 1989. From NIKKEI TELECOM.

²⁰ Ibid.

²¹ Ibid.

²² Yoder, S.K. Japan's Scientists Find Pure Research Suffers amid Rigid Life Style. *Wall Street Journal*, October 31, 1988. p. A1, A2.

GOVERNMENT AND INDUSTRY FUNDING OF RESEARCH: IMPLICATIONS

Historically, the need for financial support of non-military basic research by the U.S. government has been a continuous battle fought by scientists and their advocates. For example, even though the need for a research organization was identified in 1940, it was not until 1952 that the National Science Foundation was established. The level of funding requested in the early years was far below the amount believed necessary to establish a formidable research program. However, once the first Sputnik had been launched by the Soviet Union, research funds were increased to a critical level.²³ As mentioned in the introduction, research efforts can be categorized along a continuum from basic to applied to developmental research. New frontiers of science, i.e., scientific innovations, are largely achieved through basic research. These innovations, products or processes, are then altered and perfected in the later stages of the applied and developmental research. In the next section, the different types of research undertaken in each country are discussed as it effects the emerging frontier of science.

COMPARATIVE APPROACHES TO RESEARCH

The propensity to invent by deliberation is not an inevitable and irrepressible disposition of most human beings. It needs the exemplary support of others in the same society. Inventiveness depends in part on the presentation of a tradition of inventiveness. In the nineteenth century, the growth of scientific research in universities and by individuals placed original discovery in a position of unprecedented esteem.²⁴ However, it has been argued before that the level of inventiveness in each country has differed.²⁵ In particular, the Japanese have been quite adept at taking existing technology and finding distinctive niches for a competitive advantage. While, the United States has had an advantage in the development of new technology. For example, the United States has clearly led Japan in the number of Nobel Prizes awarded, one measure of inventiveness.²⁶ There may be some cultural reasons for the differences in the level of inventiveness. For example, the Japanese have a tradition of borrowing the best methods from around the world. This was especially obvious in the mid- to late-nineteenth century during the Meiji Period. However, there may be a tradition of borrowing that begins in the first and second centuries AD. For example, the legacy of adaptability, i.e., *Wakon-yosai*, is the adaptation of Western concepts to fit into a Japanese cultural framework. Similarly, *Wakon-kansai* describes the conversion of Chinese learning into Japanese values.²⁷

Alternately, this concept of adaptability and borrowing may be considered as the practical solution of effective information processing that imports all that is distinctive and useful and melds it into the culture. It certainly could be considered a cost effective

²³ Atkinson, Supply and Demand for Scientists and Engineers, p. 248.

²⁴ Shils, E. *Traditions*. Chicago, University of Chicago Press, 1981. p. 81.

²⁵ Flynn, Organizational and Environmental Effects on Innovation.

²⁶ Nanto, D.K. (coordinator) *Japan-U.S. Economic Issues: Investment, Saving, Technology and Attitudes*. Report No. 90-68 E. Washington, Congressional Research Service, 1990.

²⁷ Koshland, D.E. Science in Japan: A Status Report. *Science*, v. 233, no. 4761, 1985. p. 261.

strategy. However, with the pool of new ideas shrinking due to fewer resources worldwide, the Japanese may move to the role of provider of new technologies.

Historical Perspective

Japan's economic success over the last century has been attributed to the role of the government in establishing industrial policy. An early example was the establishment of the Physico-Chemical Research Institute in 1917 that yielded two Nobel Prize winners.²⁸ It is interesting to note that at the present time although Japan has a substantial technological advantage in machinery, it has a disadvantage in others, especially chemicals.²⁹ It is a paradox that Japan would trail in the chemical industry since the objectives of the Institute were focused on basic research. Its objectives included: 1) basic scientific research and its application, 2) liaison with each of the experimental stations and research institutes, 3) training of researchers, 4) subsidization and commendation of research, and 5) publications of the results of research and sponsorship of related public meetings. However, the Institute ultimately was reduced in its mission and scope due to the increased importation of superior western goods, and reduced funding support from government.³⁰

In the United States, early innovative success was largely undertaken without the assistance of the Federal Government. As noted earlier, it was not until the Sputnik was launched that the United States decided that it was time to intervene in the scientific process. In the early 1960s, the U.S. Government treated space exploration as a public good, and therefore, provided the rationale for government support of basic research.³¹ However, even though the amount of money spent on basic research exceeds that of Japan, the lack of a coordinated science and industrial policy limits the effectiveness of its funding efforts. Of particular importance for research productivity are matching funds with industry³² and coordination of research activity among the various governmental funding agencies.

Research Productivity

In 1986, Japan allocated about 2.8 percent of GNP (approx. \$38.8 billion) to non-defense R&D. In the United States, 1.8 percent of GNP (\$67.5 billion) was spent on R&D.³³ Although the amount spent in the United States is significantly higher, the Japanese have shown higher research output, as measured by the number of patents, for comparable expenditures.³⁴ For example, the overall

²⁸ Shishido, T. Japanese Industrial Development and Policies for Science and Technology. *Science*, v. 219, 1983. p. 259-264.

²⁹ Mansfield, E. Industrial Innovations in Japan and the United States. *Science*, v. 241, no. 4874, 1988. p. 1769-1774.

³⁰ Itakera, K., and E. Yagi. The Japanese Research System and the Establishment of the Institute of Physical and Chemical Research. In: Nakayama, S., D. Swain, and Y. Eri, eds. *Science and Society in Modern Japan*. Cambridge, Mass., MIT Press, 1974. p. 158-201.

³¹ Mansfield, E. *Economics*. New York, Norton Press, 1983.

³² Joglekar, F., and M. Hamburg. An Evaluation of Federal Policy Instruments to Stimulate Basic Research in Industry. *Management Science*, v. 29, no. 9, 1983. p. 997-1015.

³³ Nanto, Japan-U.S. Economic Issues, p. 101.

³⁴ Flynn, Sponsorship, Infrastructure and New Organizations, p. 159.

number of U.S. patents awarded to the Japanese from fiscal years 1978–1985 has jumped 80 percent to 12,783 while patents awarded to Americans has remained flat at 42,000.³⁵

The Japanese also introduce products about 25 percent more quickly and 50 percent more cheaply than in the United States.³⁶ However, this applies to technology developed outside the firm. When considering technology internally developed, there was no significant difference. In the United States, commercialization of new products takes as long and costs as much for internally and externally developed technology.

U.S. firms spend approximately two-thirds of their R&D expenditures on new products (vs. one-third on new processes). Japanese firms' emphasis is the opposite with two-thirds of R&D going to new processes.³⁷ This emphasis in Japan on process technology is part of the most recent stage of industrial policy that emphasized using innovative production processes to gain a cost advantage internationally.³⁸

Government Sponsorship

In 1970, government funding of research and development was approximately 30 percent for Japan and 60 percent for the United States. However, in 1988, the Japanese government funded about 20 percent versus 50 percent by the U.S. Government. This decreasing role of government funding is problematic for both countries. However, the situation in Japan may be more severe because of the critical leveling off of expenditures in basic research.³⁹

The role of basic research is to provide the foundation for industrial organizations to add incremental changes to the new technology. However, without the support of the government in funding the basic research efforts, industry is unlikely to undertake the high risks associated with basic research. Therefore, as incremental changes prevail, little is added to the scientific frontier. However, the earlier discussion about the increasing role of collaborative efforts between academia and industry in Japan will provide opportunities for risk-sharing and perhaps contribute to more innovative activity in Japan. The next section will compare two major collaborative efforts of this type in Japan and the United States, respectively.

Human Frontiers Science Program vs. Human Genome Project

The Human Frontiers Science Program (HFSP) announced in Venice in June 1987 is a tripartite forum of government, industry and universities whose main purpose is to help find practical applications for basic research in brain science at universities by channeling results to the private sector. Manufacturers will then develop test products, and evaluate their commercial feasibility.

The impetus for this project is driven by the theme that living organisms possess superior functional characteristics which have

³⁵ Japan's U.S. R&D Role Widens, Begs Attention. *Science*, v. 233, no. 4761, 1986. p. 270–272.

³⁶ Mansfield, *Industrial Innovations in Japan and the United States*, p. 1770.

³⁷ *Ibid.*

³⁸ Shishido, *Japanese Industrial Development and Policies for Science and Technology*.

³⁹ *Japan Science & Technology Outlook*. Tokyo, Science and Technology Agency, 1983.

become extremely sophisticated and precise through a billion years of biological evolution. In contrast, only a century and a half have passed since the Industrial Revolution. By using state-of-the-art science and technology to elucidate biological functions, the HFSP is attempting to make a major contribution to the history of natural science.⁴⁰

The HFSP however has been off to a slow start relative to the lofty goals suggested above. MITI's original proposal called for funding of Y1 trillion (approx. US\$6.79 billion) over 20 years. However, funding for the project's first year was less than requested (approx. US\$16.6 million). For a comparative perspective, this amount is small compared to Fujitsu's expenditure of US\$1.6 billion on R&D in 1988 alone.⁴¹ Also, a cosmetics company plans to pay \$85 million to Massachusetts General Hospital to set up a new dermatology research center in the United States.

The HFSP also met with opposition from other government agencies, notably the Education Ministry. It resented MITI's attempts to encroach on basic science, which it sees as its turf. The Finance Ministry was also against HFSP because of its "minus ceiling" policy of cuts in government spending. Many Japanese scientists also are against the proposal, fearing that funds would be taken from their current research to pay for the new program.⁴²

While the Japanese have been less than successful in gaining support for the HFSP, the United States had started a bio-science project of its own in 1985, the Human Genome Project. The scientists at the U.S. Department of Energy (DOE) proposed that some of the national laboratories should be the center of the attempt to map the 3 billion-odd bits of information that make up our genetic inheritance.⁴³

The human genome is made up of long chains of amino acids hung along thread-like molecules of basic gene material, deoxyribonucleic acid (DNA). Detailed knowledge of the genome's topography promises to revolutionize biology. For example, it should enable doctors to pin-point the genes that cause hereditary diseases such as cystic fibrosis and sickle-cell anaemia, and possibly even to replace them with healthy genes.⁴⁴

U.S. scientists say that the task will take 15 years and cost around \$3 billion. It has been funded at \$50 million for 1989. This amount is below the amount requested of about \$500 million a year. However, as requested by Congress, a report has been submitted this spring that presents quantitative goals of the Project over the next five years.⁴⁵ With explicit goals presented the expectation would be for an increase in funding to the required levels.

An interesting and promising aspect of this Project is the amount of coordination that is taking place between the various Federal research agencies, especially between the DOE and the Na-

⁴⁰ Iizuka, K. The Human Frontiers Project. *Journal of Japanese Trade and Industry*, May 1, 1989. From the NIKKEI TELECOM.

⁴¹ Johnstone, B. Fallout on the Frontiers. *Far Eastern Economic Review*, September 28, 1989. From NIKKEI TELECOM.

⁴² Ibid.

⁴³ Watson, J.D. The Human Genome Project: Past, Present, and Future. *Science*, v. 248, no. 4951, p. 44-51.

⁴⁴ Johnstone, Fallout on the Frontiers.

⁴⁵ Watson, The Human Genome Project, p. 47.

tional Institutes of Health (NIH). In fact, these two agencies signed a Memorandum of Understanding that essentially established a joint subcommittee to draw up the goals of the Project, identified above.

CONCLUSION

At the beginning of this analysis, it was suggested that the paper would focus on the changes in science policy that have occurred in Japan and the United States since the early 1980s. Although both countries have undertaken the challenge of improving the climate for technological development, the evidence does not suggest that either country has significantly altered its scientific infrastructure.

Japanese scientists may increase their role in the emerging scientific frontier, especially through the emergence of collaboration between industry and academia. In the United States, the coordination among the various agencies in the Human Genome Project may improve the scientific climate. However, the fundamental erosion of the demographic pool of science and technology personnel in both countries is problematic. Direct intervention by governmental agencies through funding opportunities and other forms of sponsorship will be necessary to stop this recession.

Critical to effective science policy is the understanding that the infrastructure for S&T is developed at many levels, beginning with early childhood education. Then, secondary schools and universities need sponsorship through retention programs, fellowships, and other educational programs. Furthermore, the institutions of each society need to collaborate in the scientific frontier. The dynamic process of building the scientific infrastructure through sponsorship is a complex but manageable process.

JAPAN'S BASIC RESEARCH: EVOLUTION FROM "MANUFACTURER" TO "LABORATORY" FOR THE WORLD

By Genevieve J. Knezo ¹

CONTENTS

	Page
Summary	320
Introduction	321
Rationale for Japan's Focus on Basic Research	321
U.S.-Japanese R&D Comparisons	323
Japanese Government Basic Research Priorities and Policies	324
Industrial Research Funding Policies	326
University Research Policies	327
Research Centers Policy	329
International Research Priorities and Policy	331
U.S. Policy Responses	332
Policy Options	334

SUMMARY

This paper summarizes recent policy changes made in Japan to enhance basic research capability specifically in order to raise its world scientific stature and to increase its technological capacity. (The paper does not focus on characteristics of the Japanese basic science enterprise in universities, research institutes, and laboratories, nor specifically on investment patterns, publications outputs, or training policies by discipline or scientific field.) Historically, Japanese researchers developed innovations and products whose basic technological information was developed in other countries and imported to Japan. Japan's successful technology policy is attributed, in part, to high-level, consensus-based priority-setting and decision-making about resource allocation and protectionist policies. It is using similar Government-industry-university priority-setting methods to identify basic research targets. Japan's technological prowess probably will be significantly enhanced if it can develop an ability to generate technology-relevant basic research knowledge and couple it to its already renowned capabilities in product innovation and marketing.

Pursuant to recent policy edicts, Japan seeks to increase Government and industry funding for basic research; to modify the hierarchical reward structure of university research; to increase university research funding, especially for younger researchers; to create more "centers" for targeted disciplinary or interdisciplinary re-

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search; to train more researchers at the graduate degree level; to open up Japanese research to foreigners; and to tap the research capabilities of foreigners. While there are obstacles to overcome, many believe that Japan will succeed in developing cutting-edge scientific capability in priority targeted areas. As a result, it may be prudent to anticipate how Japanese research policies might affect U.S. decision-making about research priorities. Is the U.S.-Japan science and technology agreement, signed in 1988, adequate to enable the United States to identify Japanese research which it should monitor or collaborate in, or for which it should develop complementary or equivalent research capability? Is another mechanism necessary? In order to remain competitive with the Japanese, should the United States improve research cooperation between and among industries, universities and laboratories? Does the Japanese consensual priority-setting process have any applicability to U.S. R&D policymaking?

INTRODUCTION

Japan's domination of many of the world's major high technology markets has been attributed to an ability to make products based, to a large extent, on incremental improvements and creative combinations of imported foreign technology, rather than on newly created scientific knowledge.² Japan traditionally has sent large numbers of students and professionals abroad to study and to visit factories and bring back knowledge, engaged in reverse product engineering, and licensed foreign technology.³

Japan's external focus was reinforced by governmental policies, which stressed: priority-setting and consensus generation exercises among government and industrial firms in order to identify profitable technological targets; cooperation in doing interdisciplinary R&D; and, for firms doing targeted R&D, rewards in the form of tax incentives, access to capital, and protection. Forecasting exercises have been credited with laying the foundation for the cooperative government-industry efforts which are the hallmarks of Japanese technological success. This priority-setting orientation seems to be very effective in aiding Japan's success in technology development, and could be equally important in the research arena as Japan seeks to evolve "from 'manufacturer' to 'laboratory' for the world."⁴

RATIONALE FOR JAPAN'S FOCUS ON BASIC RESEARCH

There is disagreement about the amount of original, creative science conducted in Japan. Most observers agree that the Japanese are extremely creative in incremental product innovation. One study found that Japanese rated higher than Americans on an index of innovation based on how often a country's patents are

² Gomory, Ralph E., and Roland W. Schmitt. Science and Product. *Science*, v. 240, May 27, 1988, p. 1131-1132, 1203-1204.

³ Johnstone, Bob. Start Up. Ship Out. *Far Eastern Economic Review*, July 20, 1989, p. 50.

⁴ This is a MITI goal, according to U.S. Department of Defense. Defense Science Board. *Final Report of the Defense Science Board 1988 Summer Study on The Defense Industrial and Technology Base, Vol. II. Subgroup Appendices*, Dec. 1988, p. 70. (Hereinafter referred to as Defense Science Board, *Final Report of the 1988 Summer Study*.)

cited in applications for other patents.⁵ Also, Japanese patents are cited one-third more than might be expected statistically in the non-patent literature, which suggests that Japanese technological innovations are highly creative, even though not necessarily science-based.⁶

Some say that Japan has the potential to become a major research nation. "In 1985, Japan ranked fourth among nations in number of scientific papers published. By 1987, it had moved past the United Kingdom and the Soviet Union into second place behind the United States."⁷ Still, Japan publishes only about one-fifth the number of papers the United States produces. Japanese scientific papers are not cited very much in other literature, suggesting that they have low scientific impact. Nevertheless, one observer, looking at historic trends, predicts that "... Japanese contributions to international scientific journals will exceed those from the U.S. by 2025."⁸

Reflecting its modest relative strength in science,⁹ from 1946 to 1989 Japan won five Nobel Prizes, while the United States won 142.¹⁰ Japan's most recent Nobel laureate, Susumu Tonegawa, who in 1987 received the prize for medicine for his work on the human immune system, was reported to have said "... that he would never have had the freedom to carry out original research if he had stayed in Japan. . . . Tonegawa spent most of his career overseas, carrying out his prize-winning research in the U.S. and Switzerland."¹¹ Some say that "Japanese society, with its emphasis on consensus and formality, grounded on an educational system that consists largely of learning by rote, block[s] creative thinking. . . . In one government survey carried out in 1988, more than half of the respondents agreed with the statement that "The Japanese environment is not adequate to foster unique and creative research." "¹²

Some continue to believe that Japan will maintain its technological strength because of its ability to innovate; that an indigenous science base is unnecessary. In contrast, over the past ten years, Japanese Government, industry, and academia have issued many pronouncements about the need to do more basic research and to institute deliberate programs to increase capability to do more basic research. A number of events have converged to compel this orientation. There is the view that it will become increasingly more difficult to import technology into Japan because of a "balance of technology" problem. Some say that Western nations, especially the United States, will increasingly attempt to prohibit the transfer, sale, or licensing of technology in retaliation to Japan's protectionist trade policies. Views have been expressed by scientists and

⁵ Vogel, Steven K. *Japanese High Technology, Politics and Power*. Research Paper #2. Berkeley Roundtable on the International Economy, March 1989. p. 11.

⁶ Narin, Francis, and J. Davidson Frame. *The Growth of Japanese Science and Technology*. *Science*, v. 245, August 11, 1989. p. 660-604.

⁷ Owens, Charles T. *Tapping Japanese Science*. *Issues in Science and Technology*, Summer 1989. p. 32.

⁸ Cross, Michael. No Bells for Japan. *New Scientist*, October 28, 1989. p. 42.

⁹ Sun, Marjorie. Japan Faces Big Task in Improving Basic Science. *Science*, March 10, 1989. p. 1285.

¹⁰ Defense Science Board, *Final Report of the 1988 Summer Study*, p. 48.

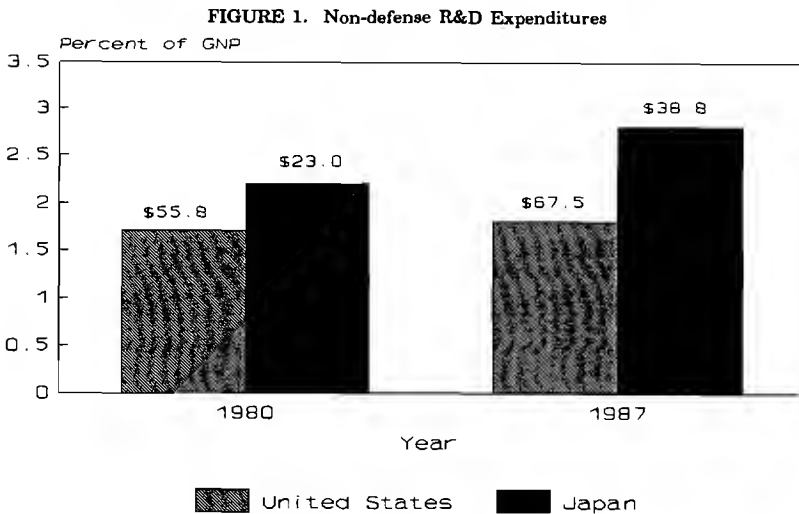
¹¹ Cross, No Bells for Japan, p. 42.

¹² *Ibid*.

politicians in other nations that Japan, which profits from the research knowledge generated by other countries, should increasingly bear the burden of doing research and contributing to the world's storehouse of knowledge. Also, citations to recent scientific literature are beginning to appear in new patent applications at rates significantly higher than in the past, indicating that major technological advances, such as computers, optics and biotechnology, increasingly rest on science.¹³

U.S.-JAPANESE R&D COMPARISONS

How do Japan and the United States compare on investment patterns for R&D, in particular for basic research? While U.S. R&D current dollar expenditures are nearly triple those of Japan in absolute terms, Japan's level of investment is comparable based on the size of its economy. Japan, however, devotes more of its GNP and R&D resources to non-defense R&D than the United States.¹⁴ See figure 1. In addition, Japan's R&D funding increased 194 percent during the period 1971 to 1987, while U.S. R&D funding increased 60 percent.



Dollar amounts in billions of constant 1982 dollars

Source: National Science Foundation

In Japan, industry is the major source of R&D funds (estimates range from 70 to 80 percent) while in the United States, Govern-

¹³ Narin and Frame, *The Growth of Japanese Science and Technology*, p. 604-605.

¹⁴ Unless otherwise indicated, data are from: *The Science and Technology Resources of Japan: A Comparison with the United States*. Washington, U.S. National Science Foundation, 1988 (NSF 88-318) and *International Science and Technology Data Update: 1988*. Washington, U.S. National Science Foundation (NSF 89-307); and U.S. National Science Board, *Science and Engineering Indicators—1989*. Washington, U.S. Govt. Print. Off., 1989. p. 96.

ment and industry fund about equal amounts of R&D. In real dollar terms, since 1982 Japanese industries' spending for R&D has increased 60 percent; U.S. industrial spending increased 20 percent.¹⁵ Industry performs about equal amounts of R&D in both countries (about 70 percent). In Japan, 98 percent of industrial R&D comes from the companies' own funds; in the United States, companies fund about 65 percent of their R&D and the U.S. Government funds about 35 percent of industrial R&D.

It is difficult to give precise comparisons about funding for basic research, since much of what Japanese firms report as basic research would be considered as applied research in the United States. Statistics show that both the United States and Japan devote approximately the same percentage of R&D to basic research, 12 to 14 percent. In both countries university researchers conduct most basic research. But more of Japan's basic research is performed in industry than in the United States. In Japan, in 1985, 32.5 percent of basic research was performed by industry, while universities performed 55 percent. Japanese data show that industry increased its share and performed 40 percent of basic research in 1987, with a slight decrease in the university share and a slight increase in the government sector.¹⁶ According to U.S. data, in the United States, in 1987, 16 percent of basic research was performed by industry and 51 percent by universities.¹⁷

JAPANESE GOVERNMENT BASIC RESEARCH PRIORITIES AND POLICIES

Many Japanese scientists fault Japanese research as being too targeted, short-range and applications oriented.¹⁸ They believe that the Japanese Government should devote more resources to R&D and, in particular, to basic research especially in universities and government research institutes.¹⁹ In 1987, Japan devoted a smaller percentage of R&D to basic research (13 percent) than in 1977 (17 percent), while during this period the U.S. percentage figures decreased slightly, from 13 to 12 percent.

The Council for Science and Technology (CST), is a supraministerial organization in the Office of the Prime Minister, which develops broad outlines for Japan's science and technology agenda and coordinates and approves plans developed by government agencies to implement the agenda. Its reports have called for increased industrial and governmental support for basic research. Reportedly, Japanese Prime Ministers have endorsed all the CST reports and passed recommendations on to the Ministries. Budgetary ceilings set by the Finance Ministry can limit implementation.²⁰ In

¹⁵ Japan. Science and Technology Agency. *White Paper on Science and Technology, 1989* (Summary). New Developments in Japanese Science and Technology in the New Era of Heisei. [Tokyo] December 1989. p. 10.

¹⁶ Japan. Agency for Industrial Science and Technology. Technology Research and Information Division. *Trends of Principal Indicators on Research and Development Activities in Japan*. [Tokyo] 1989. p. 26. (Hereinafter referred to as *Trends of Japanese R&D*.)

¹⁷ National Science Foundation. *National Patterns of R&D Resources: 1989*. (NSF 89-308.) Washington, 1989. p. 46.

¹⁸ Cross, No Bells for Japan, p. 43.

¹⁹ Johnstone, Bob. Back to the Basics. *Far Eastern Economic Review*, January 12, 1989, p. 57.

²⁰ Wallace, Charles W. *Prime Minister's Council for Science and Technology, Report No. 16: Basic Guidelines for Improving the Infrastructure for Science and Technology*. The Tokyo Office of the U.S. National Science Foundation, February 23, 1990.

1984, CST issued the first major government pronouncement that Japan should no longer be a "technological follower," but should stress the indigenous development of technology and the underlying fundamental research (11th report in November 27, 1984, *Overall Basic Policy for the Promotion of Science and Technology in Long Range Perspective to Cope with Recent Changes in Circumstances*).²¹ It stated that two fundamental policy changes were needed: Japan must initiate more original and creative basic research, and Japanese research institutions must be internationalized. Reportedly, "[i]n 1986, these principles formally became the foundation for a new national science policy."²² In succeeding years, CST issued reports dealing specifically with: S&T policy, 1985; Government Laboratories, 1987; Materials Science and Technology, 1987; International Science and Technology, 1988; Information and Electronics Science and Technologies, 1989; and Infrastructure for S&T, 1989.

In 1986, the Japanese Cabinet announced a "Policy Outline for Science and Technology," which echoed many of the recommendations made by the CST in 1984. It predicted that if appropriate policies were adopted, Japan could lead the world in and benefit economically from several high-priority fields, specifically information technology, electronics, and new materials. The document indicates that Japan also will seek to gain world leadership in the 21st century in the areas of life sciences, computer software, and space development. More modest efforts will be devoted to marine and earth sciences research since they will bring fewer "immediate benefits."²³ The CST announced that for 1989 basic research emphasis should be on materials research, creating a data base for superconducting materials, "fuzzy systems" (meaning artificial intelligence), and desertification.

Apparently these policy pronouncements have had some effect. Governmental R&D funding increased 10.5 percent from 1986 to 1987, the largest increase by any R&D support sector and the largest increase for the government sector since 1980.²⁴ It has been reported that despite fiscal stringency in Japanese Government budgets, ". . . R&D budgets are going up while [other] . . . budgets are about flat. . . . Research programs are favored with 3 percent or 4 percent increases each year. . . ." ²⁵ Government support has also shifted towards basic research, with the Ministry of Education, Science and Culture (Monbusho, which controls about half of the government's R&D expenditures, and is the principal source of funds for basic research in Japan) being favored in recent budgets relative to the two agencies primarily responsible for more strategic and applied research—the Science and Technology Agency (STA) and the Ministry of Trade and Industry (MITI).²⁶ Monbusho's S&T

²¹ Ibid. See also Martin, Ben R., and John Irvine. *Research Foresight: Priority-Setting in Science*. London, Pinter Publishers, 1989. p. 143.

²² Owens, Tapping Japanese Science, p. 32.

²³ Vogel, *Japanese High Technology, Politics and Power*, p. 29.

²⁴ *Trends of Japanese R&D*, p. 1.

²⁵ National Science Foundation. *Science in Japan: An Overview*. p. 3. Foreign aid and defense are the other two budgetary categories that have increased.

²⁶ Martin and Irvine, *Research Foresight: Priority-Setting in Science*, p. 144–145.

budget for 1989 was about \$6.2 billion, and represented 47 percent of the total government R&D budget. Reportedly, Monbusho has doubled its expenditures on basic research over the past decade, but only by trimming back other programs. During 1989, Monbusho planned to fund a fusion device, and the STA, (which funds most of Japan's non-university scientific work) planned to fund "the world's largest synchrotron" ²⁷ near Osaka. ²⁸

INDUSTRIAL RESEARCH FUNDING POLICIES

Historically Japanese private firms (not universities or government laboratories) have funded and performed most research essential to new product development. Government has supported this trend with loan guarantees, tax credits, preferential treatment and protectionist measures. Despite some obstacles, industrial firms probably will continue to do significant research in the future. In addition, the government is taking steps to target industrial research priorities and promote collaboration between universities and industry. Funding for R&D is increasing faster than capital investment in Japanese high technology companies. ²⁹

As noted above, it is difficult to give precise comparisons about industrial funding for basic research, since much of what Japanese firms report as basic research really is applied research according to U.S. definitions. The U.S. National Science Foundation (NSF) reports that, in 1986, Japanese industry funded about 11 percent of all basic research in Japan, totaling about \$550.8 million, and performed 32 percent of all basic research. U.S. industrial firms funded about 12 percent and performed about 20 percent of all U.S. basic research. ³⁰ Japanese statistics report that for the largest firms, in 1987, "basic research" expenditures averaged about 7 percent of total R&D. These percentages have increased over the last ten years. Japanese firms, on the average, have increased support for basic research as a percentage of industrial R&D funded, from about 5 percent in 1978, to about 6.6 percent in 1988. ³¹ U.S. industries, on average, spend less than 4 percent of total R&D on basic research.

Despite the apparent increase in Japanese industrial firms' support for basic research, some industries, apparently, have balked at increasing basic research funding and at establishing industrial basic research laboratories. They claim that such research does not contribute to efficiency or productivity, ³² may not have immediate profitable results, or may not generate exports. ³³ There is also the

²⁷ Japanese Science: Looking to the West and Thinking Big. *Nature*, v. 337, January 5, 1989. p. 8.

²⁸ Swinbanks, David. Japan's ERATO Programme Found to be Working Well. *Nature*, v. 337, January 19, 1989. p. 8.

²⁹ Japanese Technology. *The Economist*, December 2, 1989. p. 7.

³⁰ Japanese Government R&D Programs with Industry: MITI and Ministry of Education. The Tokyo Office of the U.S. National Science Foundation. Report Memorandum 158, July 8, 1988. passim.; and, National Institute of Science and Technology Policy (NISTEP). Science and Technology Agency. "Basic Research" in Major Companies of Japan. *NISTEP Report*, no. 8, January 1990. p. 11.

³¹ Science and Technology Agency, 1989 White Paper, p. 13.

³² End of Basic Research Boom Reported. *Tokyo NIKKEI Business*, August 4, 1986. p. 32-42.

³³ JPRS-JST-86-072-L, *Japan Report*, November 10, 1986. p. 97.

³⁴ Japanese Technology, p. 18.

view that MITI coordination has been successful in some, but not all areas, and that major firms actually do most of their work on their own, competing among themselves in pursuing research, especially in the areas of microchips and automobiles.

In 1980, MITI produced a long-term vision, which recommended more basic research. This led to the establishment, in 1981, of the Basic Technology for Future Industries Program for the next ten years. Fourteen projects have been supported in the fields of materials, biotechnology, and novel electronic devices. Each is in an area which has "theoretically or experimentally shown potential for application in new industrial technologies . . . but which would be too risky or costly for individual firms to undertake alone." It is expected that about \$859 million will be spent on the projects to 1991.³⁴ In 1985, the Japanese Diet established Kiban-Ho, a law which facilitates industrial basic research in fundamental technologies, by giving tax benefits and loans to joint research ventures in electronics, biotechnology, advanced materials, and communications.³⁵ In 1987, the Agency for Industrial Science and Technology (AIST) of the MITI began a Large-Scale R&D Programme and Basic Technology for Future Industries Program.³⁶ The *1988 White Paper on Industrial Technology* targeted for support basic research in new materials/electronics, biotechnology, software, and systems development.³⁷ AIST's 1989 basic research targets included: "ultra environment-resistant advanced materials," "nonlinear optoelectronic materials," and "technologies for the application of functional protein aggregates."³⁸

UNIVERSITY RESEARCH POLICIES

The total number of Japanese R&D scientists has tripled since 1965. As of 1986, there were about 405,000 researchers in Japan, about one-half the U.S. number. However, Japan and the United States differ significantly in terms of the structure of human resources for science and technology. In both countries most researchers are employed in industry. However, in the United States a larger percentage of researchers work in U.S. Government labs and institutes than in Japan and a smaller percentage and absolute number work in higher education than in Japan. Japan's scientists and engineers are also younger, on average, than their U.S. counterparts. Both countries have about the same number of scientists and engineers active in R&D per 10,000 labor force. But Japan has more engineers in its workforce than the United States, which has more scientists. See figure 2. In contrast to the United States, Japan stresses the education of engineers and technologists, rather than scientists. Japan and the United States graduate about the

³⁴ Martin and Irvine, *Research Foresight: Priority-Setting in Science*, p. 161, 164.

³⁵ Defense Science Board, *Final Report of the 1988 Summer Study*, p. 47.

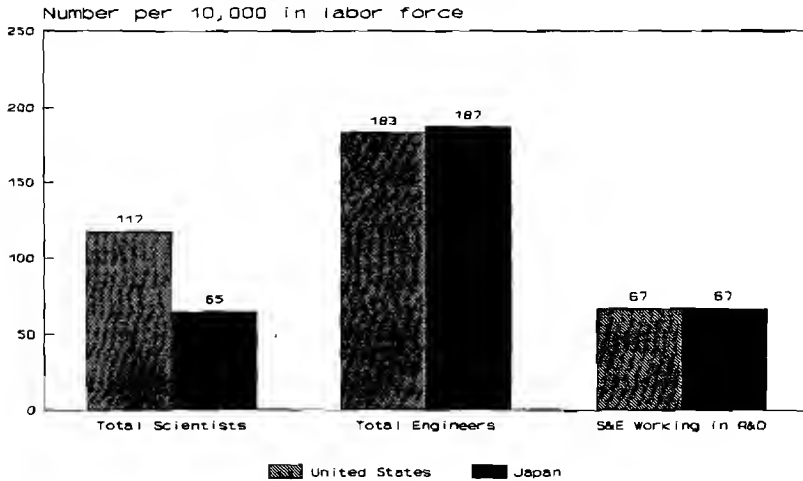
³⁶ Martin and Irvine, *Research Foresight: Priority-Setting in Science*, p. 161, citing Japan. Ministry of International Trade and Industry. Agency of Industrial Science and Technology, 1987, Tokyo, 1987 and Research and Development project of Basic Technology for Future Industries.

³⁷ Japan. Ministry of International Trade and Industry. Trends and Future Tasks in Industrial Technology. *Developing Innovative Technologies to Support the 21st Century. Summary of the White Paper on Industrial Technology*. [Tokyo] September 1988. p. 10. (Hereinafter referred to as MITI, *Summary of the White Paper on Industrial Technology*.)

³⁸ New Generation Industrial Key Technology R&D Themes. *Tsusansho Koho*, June 16, 1989. p. 7-12. As reported in JPRS-JST-90-001-L, January 2, 1990. p. 22.

same number of engineers at the B.S. level each year even though Japan has one-half the U.S. population. Japan produces fewer Ph.D. level scientists than the United States: 9 per 100,000 in the United States, versus 2 per 100,000 in Japan.³⁹ Historically, Japanese industry has not hired people with graduate degrees, preferring to train them on their own. This is changing and, now, graduate degrees are being sought.⁴⁰

FIGURE 2. Scientists and Engineers (S&E)



Source: National Science Foundation 1986 data.

The complaint is often made that Japanese support for basic research in universities is low and that this tends to diminish graduate study because researchers seek work in industry where conditions are better.⁴¹ A number of policy initiatives and programs have been made to overcome these problems. In 1984, Monbusho requested universities to do more targeted research, interdisciplinary research and to respond to socio-economic objectives. Monbusho also increased funding programs, especially for university biosciences research (1986).⁴²

The 1988 White Paper on Industrial Technology recommended more investment of public funding for basic research; the training of more masters and doctoral level scientists; and improving the research environment by hiring more research assistants, upgrading data bases, and enhancing large-scale research facilities.⁴³ The

³⁹ Japanese Technology, p. 7.

⁴⁰ *Science in Japan: An Overview*, p. 2.

⁴¹ Cross, *No Bells for Japan*, p. 43.

⁴² Martin and Irvine, *Research Foresight: Priority-Setting in Science*, p. 159-161, citing *On Basic Measures for Improvement of the System of Scientific Research*. Tokyo, Monbusho Science Council, 1984; and *Recommendations for Promotion of Bioscientific Research in Universities*. Tokyo, Monbusho Science Council, 1986.

⁴³ MITI, *Summary of the White Paper on Industrial Technology*.

1988 STA White Paper on Science faulted the hierarchical nature of Japanese universities as stifling research creativity. This occurs because "Monbusho distributes funds to researchers at national universities and laboratories through two main programs: a basic support system, in which money is allocated to individuals based on seniority alone, and grants, which are awarded on merit."⁴⁴ Reportedly, about twice as much support goes for seniority than for merit⁴⁵ and much is unproductive. The paper concluded that because of this system, the work produced by Japanese researchers generally is less original than that of their U.S. and European counterparts (even though, according to a survey of Japanese scientists, Japanese research is superior to U.S. research in some areas of information/electronics and "matter/materials").⁴⁶ STA recommended that more attention be given to individuality and personal qualities of researchers and research managers,⁴⁷ and that research be funded on the basis of merit, rather than seniority.

RESEARCH CENTERS POLICY

According to science policy scholars and recent government policy documents, in order for Japan to improve its research capability it must create strong universities and research institutes on the model of Western research institutions.⁴⁸ This theme was stressed in the 1988 White Paper on Science and Technology, which called for the creation of centers of excellence that meet international research standards and for a "national center of excellence," like a Bell Laboratories, or a National Institutes of Health.⁴⁹ Tsukuba Science City⁵⁰ and the "technopolis" program are intended to help meet these aims.⁵¹ In 1990, the STA published results of a survey of Japanese researchers, of whom only three percent said there were excellent research centers in Japan for their fields of study. The report called for the creation in Japan of more "centers of excellence," like those ranked as the world's best: the U.S. National Institutes of Health, the Massachusetts Institute of Technology, and West Germany's Max Planck Gesellschaft for the Promotion of the Sciences.⁵² The following were ranked in order as Japan's top ten research centers:

1. National Laboratory for High Energy Physics, Education Ministry (Monbusho);
2. Institute of Physical and Chemical Research (RIKEN);

⁴⁴ Sun, Japan Faces Big Task in Improving Basic Science, p. 1285.

⁴⁵ Ibid.

⁴⁶ Cross, Michael. Japan's Research Forges on Without Sparkle. *New Scientist*, May 7, 1989. p. 27.

⁴⁷ Towards the Establishment of a New Creative Research Environment. [Summary of White Paper on Science and Technology, 1988]. *Science and Technology in Japan*. April 1989. passim. See also: Japan. Science and Technology Agency. *1988 White Paper*. Part II. *Japan Report*. JPRS-JST-89-027-II, December 13, 1989; and, Johnstone, Back to the Basics, p. 57.

⁴⁸ Keichi, Oshima. The Political Dimension of Scientific Research. *Japan Quarterly*, v. 35, July-September 1988, p. 301.

⁴⁹ Cross, Japan's Research Forges on Without Sparkle, p. 27.

⁵⁰ Lynn, Leonard. Japanese Research and Technology Policy. *Science*, July 18, 1986. p. 299-300.

⁵¹ Ibid., p. 300.

⁵² Japan. Science and Technology Agency. Results of the "Survey on the Course for Improvement of Basic Research Management in Japan." *The News*, no. 50 (March 1990) from the Research by the Special Coordination Funds for Promoting Science and Technology. 13 p.; and, Scientists Note Lack of Top Facilities. *The Japan Times*, March 1, 1990. p. 3.

3. Electrical Communications Laboratories, Nippon Telegraph and Telephone;
4. Institute for Molecular Science, Monbusho;
5. Kyoto University;
6. National Cancer Center, Health and Welfare Ministry;
7. Electro-technical Laboratory, MITI;
8. Earthquake Research Institute, Monbusho;
9. Okazaki National Research Institute, Monbusho; and
10. Engineering Faculty, Kyoto University.⁵³

Reputedly, one of the hallmarks of Japanese success in industrial innovation within firms is the cooperation and follow-through between researchers and technologists collaborating in an interdisciplinary manner from design through production, marketing, and sales.⁵⁴ But, outside of industrial firms, "there is . . . little movement of researchers from one lab to another, which tends to limit the flow of ideas and techniques among research groups. . . . And, unlike the situation in the United States, corporate contributions to academic laboratories in Japan and industry-university collaboration in research are relatively unusual."⁵⁵ Typically, industry is not a big supporter of university research. Thus, a major theme of some recent policy papers is for more interdisciplinary and industry-university-government laboratory research collaboration and the creation of new "centers" and programs to overcome barriers among units and agencies which discourage such work and to capitalize on promising research targets projected for the future.⁵⁶

The Japanese Government established a program in 1981 specifically to foster indigenous capacity to generate interdisciplinary creative research and knowledge in high risk areas for science-based industries of the future.⁵⁷ It is called the Exploratory Research for Advanced Technology Program (ERATO).⁵⁸ A recent evaluation by the Japan Technology Evaluation Program, a group of U.S. basic and industrial researchers and academics supported largely by the U.S. NSF, concluded that the program is highly successful in fostering creative science.⁵⁹

The 1986 *White Paper on Science and Technology* recommended the "fusion of previously separate research fields" and more long-range interdisciplinary work across academic, agency, private sector performers.⁶⁰ Many observers credit Japan's technological

⁵³ Japan. Science and Technology Agency. Results of the Survey on the Course for Improvements of Basic Research Management in Japan. *The News*, No. 50, March 1990. 13 p. From the Research by the Special Coordination Funds for Promoting Science and Technology; and, Scientists Note Lack Top Facilities. *The Japan Times*, March 1, 1990. p. 3.

⁵⁴ Tatsuno, Sheridan. Japan: From Imitator to Innovator. *New Technology Week*, October 2, 1989. p. 6-7.

⁵⁵ Sun, Japan Faces Big Task in Improving Basic Science, p. 1285.

⁵⁶ Towards the Establishment of a New Creative Research Environment and JPRS-JST-89-027-II, December 13, 1989.

⁵⁷ Martin and Irvine, *Research Foresight: Priority-Setting in Science*, p. 170-171.

⁵⁸ Dambrot, Stuart M. Japanese R&D: A New Model. *Business Tokyo*, July 1988. p. 24-27.

⁵⁹ Japanese Technology Evaluation Program (JTECH). *JTECH Panel Report on The Japanese Exploratory Research for Advanced Technology (ERATO) Program*. McLean, Va., Science Applications International Corporation, December 1988. p. 15; and, Johnstone, Bob. Japan's Creative Catalyst. *Far Eastern Economic Review*, v. 143, February 23, 1989. p. 67. See also: Swinbanks, Japan's ERATO Programme Found to be Working Well.

⁶⁰ Martin and Irvine, citing Japan. Science and Technology Agency. *Science and Technology White Paper 1986: Toward a Better Environment for Man (Summary)*. Tokyo, Foreign Press Center.

success to its practice of "technological fusion," consisting of investment by different industries in research and product development which require expertise from both, such as in optical fibers,⁶¹ mechatronics (robotics) or the merging of electronics and mechanical engineering, optomechatronics, bioelectronics, biocommunications, and bioceramics. MITI's industrial cooperation policies and the cross-ownership of stocks by companies facilitate fusion, and it is now being promoted for basic research.⁶² Laws have been enacted to promote fusion: In 1985, the government encouraged industry researchers to work with government laboratories in six high-tech fields. In July 1986, a new law was passed to make it easier for government researchers to be assigned to work temporarily outside government without losing retirement and other benefits. The same law made it easier for industry researchers to work in government laboratories.⁶³

Some say there is also a need to overcome institutional rivalry, especially among government ministries. "Bureaucratic in-fighting between the half dozen major government agencies competing for influence over [biotechnology research, an] . . . emerging industry may . . . cause problems."⁶⁴ Such rivalry also clouds the widely heralded Human Frontier Science (biosciences research) program, designed to be international. Originally the program was slated to receive initial funding of \$1 billion over 20 years. But MITI could not secure the consensus required among the rival bureaucracies, and foreign governments were not as receptive to the project as had been hoped. It is now funded at about \$12 million annually.⁶⁵ In 1988, the government announced creation of an Interministry Research System. The objective is to remove administrative barriers to allow teams of researchers from ministries and universities to do fundamental basic research. The CST is to determine priorities.⁶⁶

INTERNATIONAL RESEARCH PRIORITIES AND POLICY

Several kinds of programs and policies to "internationalize" Japanese science have been developed since the theme was first enunciated in the 1984 CST report. The objectives are to "help more Japanese to learn from foreigners about how they conceptualize problems or carry out their research,"⁶⁷ to conduct more R&D in Japanese laboratories newly purchased abroad,⁶⁸ and to respond to foreign calls to share research information.

In 1987, the STA recommended that the R&D system should be opened to foreign scientists and that international cooperation should be sought in order to overcome the insularity of Japanese basic research.⁶⁹ The 1988 White paper on S&T stressed the need

⁶¹ Survey of Japanese Technology, *The Economist*, December 2, 1989, p. 5-6.

⁶² Tatsuno, Japan: From Imitator to Innovator, p. 5.

⁶³ *Science in Japan: An Overview*, p. 3.

⁶⁴ Lynn, Japanese Research and Technology Policy, p. 300.

⁶⁵ Johnstone, Back to the Basics, p. 57.

⁶⁶ *Science and Technology Perspectives*. Foreign Broadcast Information Service, (FBIS). June 30, 1988, p. 4.

⁶⁷ *Science in Japan: an Overview*, p. 4.

⁶⁸ Lepkowski, Wil. Japan Outlines Science, Technology Goals. *Chemical and Engineering News*, June 29, 1990, p. 21, citing *White Paper on Science and Technology, 1989*.

⁶⁹ Martin and Irvine, *Research Foresight: Priority-Setting in Science*, p. 143.

for Japan to contribute to the expansion of the world's intellectual assets" and to host more foreign researchers and more international conferences.⁷⁰

The 1987 CST report on government laboratories led to the May 1988 STA initiative called "International Core System for Basic Research," which requires all laboratories to seek visiting, including foreign, researchers who previously had not been allowed to work in these laboratories.⁷¹ These core basic research projects are selected by the CST, with about one-third of those submitted in 1989 receiving funds.⁷² Monbusho has set up special university chairs for foreigners, and Japanese national universities and government laboratories have begun to accept foreigners as full-time faculty on an equal footing with Japanese professors (who are civil servants.)

In addition "[a]s a signal to Japanese scientists that world respect matters, the government created the Japan Prize for scientific research, which at 50 million yen is larger than the Nobel Prize."⁷³ Japan also has established an elaborate National Center for Science Information System—"sort of a huge computer-driven central library linking Japan's universities and private-sector research labs." It includes Japanese and foreign technical information, which is "machine translatable."⁷⁴

Japanese firms have also started to purchase American R&D firms and to locate research institutes abroad, especially in "targeted research fields" where Japanese skills are limited, such as software, electronics, semiconductors, chip-testing, computer hardware, and biotechnology.⁷⁵ It was estimated in the fall of 1989 that Japanese companies have opened about 45 laboratories overseas.⁷⁶ This includes in the United States, the purchase of Materials Research Corporation by Sony, of Gen-Probe (a biotechnology firm) by Chugai Pharmaceutical,⁷⁷ opening of an institute sponsored by NEC on electronics at Princeton in May 1989, and joint agreements as between Hitachi and Texas Instruments on dynamic random access memory chips.⁷⁸ Japan also has begun to support research in leading U.S. academic institutions, specific contracts for academic R&D projects, and reciprocal arrangements to exchange research personnel.⁷⁹

U.S. POLICY RESPONSES

In the early 1980s, the U.S. Government launched several initiatives to widen access to information about Japanese science. It revi-

⁷⁰ *Science and Technology in Japan*, April 1989, passim.

⁷¹ Japanese Basic Research Program Encourages International Participation. *NTIS Foreign Technology*, November 1989. p. i. For additional information see: *International Core System for Basic Research (Kokusai Ryudo Kiso Kenkyu)*. The Tokyo Office of the U.S. National Science Foundation. Report Memorandum #185, September 13, 1989. 5 p.

⁷² Japanese Basic Research Program Encourages International Participation, p. v.

⁷³ Owens, Tapping Japanese Science, p. 33.

⁷⁴ Lepkowski, Wil. Japan's Science and Technology Aim Toward Globalization. *Chemical and Engineering News*, May 8, 1989, p. 12.

⁷⁵ Sun, Marjorie. Investors Yen for U.S. Technology. *Science*, v. 246, December 8, 1989. p. 1238-1241.

⁷⁶ Cross, No Bells for Japan, p. 44.

⁷⁷ Sun, Investors Yen for U.S. Technology, passim.

⁷⁸ Japanese Science Looking to the West and Thinking Big. *Nature*, v. 337, January 5, 1989. p. 8.

⁷⁹ Herbert, Evan. Japanese R&D in the United States. *Research. Technology Management*, November-December 1989. p. 11-20.

talized the information reporting functions of the science attaches in the Tokyo Offices of the National Science Foundation and the Office of Naval Research. The Japanese Technical Literature Act of 1986 (P.L. 99-382) authorized the Commerce Department to collect, translate, and disseminate Japanese scientific information for the use of government, industry and academia. The Department created an Office of Japanese Scientific and Technical Literature. In 1987 an Office on Japan Affairs was established in the National Research Council of the National Academy of Sciences.

The JTECH program (Japanese Technology Evaluation Program) was started in 1983 under the sponsorship of several U.S. Government agencies to provide objective evaluations of Japanese research and development in selected high-technology fields or disciplines. Program reports evaluate the technical quality of Japanese literature in different fields in comparison with U.S. progress. As of 1988, reports had been published dealing with the status of Japanese research in computer science, opto- and microelectronics (non-silicon-based), advanced polymers, mechatronics, telecommunications, and biotechnology. Work has begun to evaluate advanced computing (the Fifth Generation Program and related efforts).⁸⁰

Pursuant to Executive Order 12591 of April 10, 1987,⁸¹ reporting of science policy and scientific/technical research results was enhanced with the creation of the STRIDE (S&T Reporting and Information Dissemination Enhancement) system. In addition, annually the National Technical Information Service in the Commerce Department produces a directory of Japanese technical information resources in the United States.⁸² And reportedly, the Japanese Government has begun to translate and expand the Japan Information Center for Science and Technology database to make it accessible in English.⁸³

The umbrella U.S.-Japan Science and Technology Agreement, signed in June 1988, commits both governments to strive for a more equal balance in access to each other's laboratories and scientific information and includes provisions for protection of U.S. intellectual property rights, and reciprocity in research cooperation.⁸⁴

In addition to opening up some of its laboratories and providing general fellowships and research grants for foreigners, the Japanese Government and private societies have created at least 120 fellowships specifically for U.S. scientists to work in Japan.⁸⁵ In

⁸⁰ Gamota, George, and Wendy Frieman. *Gaining Ground: Japan's Strides in Science and Technology*. Cambridge, Mass., Ballinger, 1988. p. 3.

⁸¹ Which required the Secretaries of State and Commerce and the Director of the National Science Foundation to develop a mechanism to disseminate to public and private users S&T information developed abroad.

⁸² The most recent is available from NTIS as PB90/100165/WFT, PC A04/MF A01, 69 p.

⁸³ U.S. Dept. of State. *Science, Technology, and American Diplomacy, 1990 Title V Report*. Washington, 1990. p. 123.

⁸⁴ P.L. 100-418 the Omnibus Trade and Competitiveness Act of 1988 requires that federally supported international science and technology agreements should be negotiated to ensure protection of intellectual property rights and reciprocal access to R&D information and facilities.

⁸⁵ Major Japanese research projects open to foreign researchers include: the International Joint Research in Material Functions and Biological Functions, under MITI; the International Research Exchange Program, administered by MITI's Agency for Industrial Science and Technology; the Fellowship Program, administered by the STA; the Electrical Communication Frontier Research Program Committee, managed by the Ministry of Posts and Telecommunications;

addition Japan gave the National Science Foundation \$4.8 million in 1988 to establish the Japan-U.S. Fellowship Fund to support any U.S. researcher to work in any Japanese laboratories. NSF also has additional funds for support of Americans in Japan under its U.S./Japan Initiative Program, but the program is limited to graduate and postdoctoral fellows.⁸⁶

Reportedly, these exchange programs suffer from a lack of applicants and interest by Americans.⁸⁷ It has been estimated that 500 to 600 American researchers spend part of each year doing work in Japanese laboratories. "By comparison, about 12 times as many Japanese make official visits to U.S. labs."⁸⁸ The Japanese Government reports that, in 1986, Japan sent 26,334 researchers to the United States, but only 3,633 U.S. researchers went to Japan.⁸⁹ According to an NSF official, "the number of opportunities to do research in Japan is growing faster than the number of . . . Americans applying to fill them."⁹⁰

Americans are reluctant to participate in these programs because: historically Japan has not done world-class science; U.S. researchers, especially industrial researchers influenced by the "not-invented-here" syndrome, are reluctant to search for and acquire foreign know-how;⁹¹ "there is a short-sightedness in the research community . . ." and lack of appreciation for "the special value that researchers returning from Japan will have for . . . [U.S.] R&D programs";⁹² language and cultural differences are large; and, reportedly, there is still some resistance within the Japanese industry and bureaucracy to foreign presence.⁹³

It has also been noted that while some argue that Japanese investment in U.S. R&D industries may be important to provide capital to sustain U.S. economic activity, such investment has generated sharp concern⁹⁴ among those who believe that Japan is "buying up" too many U.S. research resources.⁹⁵

POLICY OPTIONS

Some observers predict that, despite obstacles, Japan will achieve its scientific goals (training more scientists; shifting funds to universities for research, with support to be awarded on the basis of

the International Superconductivity Technology Center, managed by MITI; the Japan Trust International Research Cooperation Service, administered jointly by MITI and the Ministry of Posts and Telecommunications; the Exploratory Research for Advanced Technology program (ERATO), administered by the STA; basic research in electrical communications technology using superconductivity and bionics under the Exploratory Research for Advanced Technology Program and the International Core System for Basic Research; and research on steel and advanced materials sponsored by the Iketani Science and Technology Development Foundation, funded by private firms. (Japan: Opening Research to Foreign Participation. *FBIS. Science and Technology Perspectives*, v. 4, October 20, 1989. p. 16-17; and, Japan Continues to Open Research To Foreign Participation. *NTIS. Foreign Technology*, v. 89, December 1989. p. vi, vii-viii.)

⁸⁶ Owens, Tapping Japanese Science, p. 33.

⁸⁷ Swinbanks, Japan's ERATO Programme Found to be Working Well, p. 8.

⁸⁸ Owens, Tapping Japanese Science, p. 32.

⁸⁹ *Trends of Japanese R&D*, p. 25.

⁹⁰ Owens, Tapping Japanese Science, p. 34; Dambrot, Japanese R&D: A New Model, p. 24.

⁹¹ Alic, J.A. *Japanese R&D and U.S. Technology Policy*. Prepared for the International Conference on Japanese Information University of Warwick, September 1-4, 1987. p. 7.

⁹² Owens, Tapping Japanese Science, p. 34.

⁹³ Japanese Technology, p. 18. See also: *Science in Japan: Japanese Laboratories Open to U.S. Researchers, 1989*. Indianapolis, Indiana, Technology Transfer Society, 1989. 144 p.

⁹⁴ See: Jackson, James K. *Japanese Investment in the United States*. Report No. 90-13 E. Washington, Congressional Research Service, 1990. 36 p.

⁹⁵ Sun, Investors Yen for U.S. Technology, p. 1238.

merit rather than seniority; strengthening relationships between universities and industry; and overcoming an ingrained reluctance to do basic research)⁹⁶ and will rapidly develop more world-class research and research institutes. For instance, according to one commentator: "[c]onsidering the Japanese track record for identifying national goals and achieving them, it seems distinctly possible that within one or two decades Japanese science will catch up with Japanese technology."⁹⁷ Another observer predicts that Japan will develop an "awesome" basic research profile within the next ten years.⁹⁸

Historically, the Japanese have had a propensity to achieve the technological goals they set for themselves. Now, they have articulated goals for research—goals intended to strengthen Japan's technological capacity and competitiveness. The Japanese have demonstrated speed and success in using scientific information to produce technological applications; now the government has targeted priorities for basic research and has provided industry with funding and other investment incentives. These efforts have been initiated by the CST—at the highest government level—the Prime Minister's office.

A number of factors determine U.S. public and private research goals and policies. Since the end of World War II, foreign civilian scientific activities have generally not played a major role in decisions about U.S. research policy. But their salience has increased along with growth in the scientific capacity of other nations and spiraling increases in the cost of "doing research." It is important that U.S. research policymakers consider the goals and methods of Japanese research programs. It may be prudent for the United States to intensify efforts to examine, understand, and profit from all aspects of the growing Japanese scientific enterprise, including assessing priority-setting methods, examining targets that have been identified, collaborating in research where essential, and ensuring adequate information exchange.

Several issues may warrant attention in this regard. Some recommend that more Americans be sent to Japan to monitor and learn about the Japanese research process. It has been suggested that the NSF's exchange programs be opened up to younger U.S. researchers, at the college and even pre-college level, to help develop a coterie of Americans who understand the Japanese language, culture, and research orientation. It has been recommended that more American industrial firms should establish R&D operations in Japan to learn about the kinds of research and innovation processes important to the Japanese and that they "internationalize" their operations by hiring Japanese researchers.

For the purposes of assessing U.S. policy, it may be appropriate to divide Japanese science into three categories, that which the United States should just monitor, that which we should seek to collaborate in, and that in which we should continue or initiate independent U.S. efforts to complement the Japanese activity or duplicate it. Is this a useful approach? Do existing mechanisms allow

⁹⁶ Cross, *No Bells for Japan*, p. 43, citing Sheridan Tatsuno, *Created in Japan*.

⁹⁷ Narin and Frame, *The Growth of Japanese Science and Technology*, p. 604.

⁹⁸ Tatsuno, *Japan: From Imitator to Innovator*, p. 7.

U.S. scientists to monitor adequately Japanese basic research activity? The 1988 U.S.-Japan S&T agreement lists the fields in which the two countries will cooperate (biotechnology and other life sciences, information science and technology, manufacturing technology, automatic and process control, global geosciences and environment, information sciences, database development, and advanced materials including superconductors). Are the communications channels established by the agreement adequate to provide the United States with a good understanding of Japanese science?

In order to strengthen the U.S. research potential, should the United States engage in collaborative intersectoral research priority-setting exercises like the Japanese? Are there sufficient incentives for industry and universities to produce the kind of technology-related research results the U.S. economy requires?

According to the JTECH reports, Japan's ERATO project produces world-class research. Are U.S. scientists collaborating sufficiently with the Japanese in the leading areas of the ERATO project and other research activities to give us an understanding of fields where Japan excels? Japan, reportedly, does world-class research in the following ERATO projects:

- use of magnetic flux quanta to make ultra-fast computers (Josephson junction technology);
- growing perfect crystals of silicon and gallium arsenide (the Japanese strength, reportedly, is in crystal growth and materials fabrication; the U.S. strength is in theory, which many experts argue "is not as important for applications as obtaining a good experimental knowledge of their properties. . . .");⁹⁹
- understanding the use of prostaglandins (hormone-like compounds) in the central nervous system and their role in biological information transfer; and
- finding commercial applications for micro-organisms that can thrive in extremes of pH, temperature, or salinity.

Other reports have praised the high quality of Japanese research on:

- use of materials at high temperatures and at high levels of corrosion resistance (it is estimated that 70 percent of the funding for this research comes from industry);¹⁰⁰
- marine biotechnology and applications, which Japan believes will become a major economic factor in the 21st century;¹⁰¹
- growth of zinc selenide films, perpendicular recording, hot ductility of low-alloy steels, and micro-enzyme sensors;¹⁰²

⁹⁹ Johnstone, Bob. Conductors Set Slow Tempo. *Far Eastern Economic Review*, November 23, 1989. p. 83; Dozier, Kimberly. Japan Shows Its 'R&D' Teeth With Superconductivity Research Effort. *New Technology Week*, August 14, 1989. p. 6-7; and, Pool, Robert. Keeping Up with the Jonesawas. *Science*, v. 1245, August 11, 1989. p. 594-595.

¹⁰⁰ Japan Has Significant Technical Base in High-Temperature Materials. Part 1: Government Programs. *NTIS. Foreign Technology. An Abstract Newsletter*, v. 89, December 6, 1989. p. i-v; and, Pool, Keeping Up with the Jonesawas, p. 594.

¹⁰¹ The major governmental support is MITI, which together with industrial and university teams is planning to spend about \$200 million over the next decade. These are among the conclusions of a U.S. Government assessment: Zaborky, Oskar R., David H. Attaway, and Akira Mitsui. *Marine Biotechnology in Japan. An Assessment for the National Science Foundation and the National Oceanic and Atmospheric Administration*. Washington, November 1989. 29 p. plus appendices. The report recommends that the "U.S. should enhance its position in marine biotechnology and cooperate with Japan for mutual benefit."

¹⁰² U.S. Institute for Scientific Information. *Science Watch: Tracking Trends and Performance in Basic Research*, v. 1, February 1990. p. 1-2.

- work on neural networks in computer research applications;¹⁰³ and
- supercomputer research and applications.¹⁰⁴

Some believe that U.S. and other non-Japanese-sponsored human genetics projects are better vehicles for international cooperation in biotechnology and genetics than Japanese projects. They say that Japanese researchers might unfairly use foreign-originated breakthroughs that might be made in the Japanese Human Frontiers project for their own commercial advantage. Therefore, it has been suggested that the United States seek to reorient Japanese research priorities away from Human Frontiers (biotechnology-related research) to other areas where it could make a significant contribution, such as tropical medicine in underdeveloped countries.¹⁰⁵ Some have even proposed that the United States impose a "science tax" or tariff on Japanese high-technology products imported into the United States, if Japan chooses not to cooperate in the international human genome project and other areas.¹⁰⁶ These proposals would be politically and diplomatically difficult to implement, but may warrant additional study in the future. The U.S. Congress has already enacted legislation which requires it to review contributions from other countries in the Superconducting Supercollider Project (P.L. 101-101).¹⁰⁷ Reportedly, this was intended to keep U.S. control of SSC technology.¹⁰⁸

¹⁰³ Johnstone, Bob. The Thinking Man's Computer. *Far Eastern Economic Review*, September 21, 1989.

¹⁰⁴ Japanese Supercomputer Users Have Lower Costs, Greater Access than U.S. Counterparts. *NTIS. Foreign Technology. An Abstract Newsletter*, February 27, 1990. p. 1, iv, v.

¹⁰⁵ Martin and Irvine, *Research Foresight: Priority-Setting in Science*, p. 190.

¹⁰⁶ Q & A with James Watson, Genome Project Chief. *Science and Government Report*, v. 20, March 15, 1990. p. 2. See also: Roberts, Leslie. Watson Versus Japan. *Science*, v. 246, November 3, 1989. p. 576-578.

¹⁰⁷ Boesman, William C. *Superconducting Super Collider: Science, Costs and Benefits*. Report No. 90-178 SPR. Washington, Congressional Research Service, 1990.

¹⁰⁸ Crawford, Mark. Japan and the SSC: Congress Raises a Red Flag. *Science*, v. 246, November 3, 1989. p. 577.

JAPAN AND THE GLOBAL ENVIRONMENT: PROBLEM SOLVER OR PROBLEM MAKER?

By Alan S. Miller and Curtis Moore ¹

CONTENTS

	Page
Summary	338
Introduction	339
An Overview of Environmental Policy in Japan	339
Environmental Values in Japan	339
Lack of a Strong Citizens' Lobby	340
The Role of the Environment Agency	341
Role of Women in the Environmental Movement	342
Energy and Environmental Policy	342
Energy Efficiency	342
Japanese Energy Technology and the Environment	345
The Evolution of Japanese Policy Toward International Environmental Agreements	348
The Role of International Pressure on Japanese Policies	348
Foreign Policy Considerations	350

SUMMARY

The Japanese consider nature a resource for man to enjoy. Indeed, destruction of the environment became an issue in Japan only when industrial pollution began affecting people's health. The Japanese tend to see themselves, rather than the environment, as the victims of pollution.

Japan's initial environmental activists were victims of pollution. They organized in response to local problems, often health or nuisance related (e.g., noise levels). However, there are some signs of rising interest in both domestic and international environmental issues.

The Japanese Environmental Agency (JEA) was formed in 1971 largely in response to demands of pollution victims that the government take a more responsible approach toward the environment. Although JEA provides an important focal point for environmental advocates and analysis, the agency has much less power than the Trade Ministry and the other established agencies with economic growth-oriented missions.

Women provide much of the force behind Japan's anti-pollution movement, primarily because they have been viewed as caretakers of the family and of the community.

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Japan has made remarkable progress toward improving its overall energy efficiency. However, lower oil prices, the strength of the economy since 1986, and the stability of the yen have led to a declining interest in energy efficiency in recent years. Japanese industry has reduced energy consumption by using improved measurement and control devices, by installing waste heat collection systems, and by changing the production process itself. Japan has been developing technologies that would allow for economic growth but would be more compatible with environment concerns. These include fuel cells, selective catalytic reduction, combined cycle power plants, and increased automotive efficiency.

Japan has been slow to respond to international environmental problems. Traditionally it has been a follower in international policy, has lacked a strong environmental lobby, and on the environment, and has had a strong national consensus supporting economic growth. Recently, however, international pressure has forced Japan to reconsider its position on many environmental issues, including the use of driftnets, importation of ivory and endangered species, the production of chlorofluorocarbons, and global warming. It also is using its financial resources more for projects related to the environment.

INTRODUCTION

This paper presents some perspectives on Japanese policies toward international environmental issues. The first section reviews domestic factors, including the role of environmental values, the influence of the Environment Agency, and the prospects for a stronger environmental lobby. The second section focuses on the relationship between energy and environmental policy, noting in particular the remarkable technological innovation of Japanese industry in response to domestic pressures to control air pollution and improve energy efficiency. Finally, the concluding section describes some evolution in Japanese policy toward specific international issues and suggests some of the factors likely to shape future policy development in this area.

AN OVERVIEW OF ENVIRONMENTAL POLICY IN JAPAN

ENVIRONMENTAL VALUES IN JAPAN

Although the Shinto and Buddhist religions are far more sympathetic to nature than the Judeo-Christian religions of the West, these historical traditions have very little relevance to current Japanese environmental policy. The Japanese hold more utilitarian views of the environment than does the West, considering nature a resource for man to enjoy. Indeed, destruction of the environment only became an issue in Japan when industrial pollution began affecting people's health. The Japanese tend to see themselves, rather than the environment, as the victims of pollution.² In a 1989 survey of 14 nations commissioned by the United Nations Environment Program, only 44 percent of the Japanese public polled

² McKean, Margaret. *Environmental Protest and Citizen Politics in Japan*. Berkeley, Calif., University of California Press, 1981. p. 137.

expressed a willingness to contribute their money or labor to improving their environment. Other nations in the survey expressed a 60 percent to 100 percent willingness to contribute to the betterment of the environment. Interestingly in a country where pollution has had severely negative effects on the health of the population, the Japanese are also far less likely than other respondents to think that a deterioration of the environment would threaten public health.³

LACK OF A STRONG CITIZENS' LOBBY

The Japanese citizen movements that fought for pollution control in the 1960s and 1970s had a considerable impact on Japan's response to environmental problems. Environmental regulations were tightened significantly and in some areas, particularly control of traditional air pollutants, Japan became a world leader. However, unlike experiences in the United States and Europe, Japanese environmentalists have so far failed to build a strong national movement that can influence the national political agenda. "If anything will hold back progress [on environmental issues], it will be Japan's lack of environmental activists and experts."⁴ The feeling that the government is too big to fight and that the individual citizen has no power is very strong.⁵ The courts, which had provided environmentalists with a series of important victories in the 1960s, also retreated in several major cases that could have institutionalized environmental activism.⁶ The movements continue to face opposition from industry, government, and the ruling Liberal Democratic Party.

The initial environmental activists were pollution victims, their families and others who lived in contaminated areas.⁷ They organized in response to local problems, often health or nuisance related (e.g., noise levels).⁸ The focus on local concerns has historically meant the absence of a constituency for international environmental issues. Despite a heightened awareness of international environmental problems, a 1989 nationwide poll conducted by the Prime Minister's office revealed that "only one out of five Japanese takes a strong personal interest in global environmental problems."⁹

However, there are some signs of rising interest in both domestic and international environmental issues. Citizen conferences on the international environment in Osaka and Tokyo in September 1989 attracted enormous public interest and considerable media coverage. During 1989, campaigns were mounted to halt construction of dams on the Kamo River in Kyoto, the Shimanto River in Shikoku, and the Nagara River, running from the Japan Alps to Ise Bay.¹⁰

³ U.N. Environmental Programme. *United Nations Environmental Programme Survey*. Geneva, May 1989.

⁴ Putting the Heat on Japan. *Time*, July 10, 1989. p. 52.

⁵ Telephone conversation with Margaret McKean, September 14, 1989.

⁶ Upham, Frank K. *Law and Social Change in Postwar Japan*. Cambridge, Mass., Harvard University Press, 1987. 288 p.

⁷ Woronoff, Jon. *Politics the Japanese Way*. New York, St. Martin's Press, 1986. p. 264, 265.

⁸ Politics of the Environment. *American Behavioral Scientist*, May-June 1974. p. 764. See also McKean, *Environmental Protest and Citizen Politics in Japan*.

⁹ *Japan Quarterly*, April-June 1989. p. 237.

¹⁰ Environment Blossoms as Japan Issue. *Los Angeles Times*, August 16, 1989. p. 1, 12.

Japanese and foreign environmentalists rallied for the preservation of a rare coral reef off the Island of Ishigaki in Okinawa where the government planned to build an airport.¹¹ Environmentalists also opposed the Japanese government's plan to build housing for U.S. military personnel in the Ikego forest, which shelters a number of endangered species and is one of the few forests still standing in the Tokyo area.¹²

THE ROLE OF THE ENVIRONMENT AGENCY

The Japanese Diet instituted the Japanese Environmental Agency (JEA) in 1971 largely in response to demands of pollution victims that the government take a more responsible approach toward the environment. The agency's mandate is to coordinate and administer programs to prevent environmental pollution and to protect nature.¹³

Although JEA provides an important focal point for environmental advocates and analysis, the agency has much less power than the Ministry of International Trade and Industry (MITI) and the other established agencies with economic growth-oriented missions.¹⁴ There is a large range of environmental law over which JEA has limited authority, including pollution control for individual factories, toxic wastes, and the regulation of marine pollution, sewage, waste disposal, and agricultural chemicals.¹⁵ JEA's most notable failure is in its inability to get environmental impact legislation passed, a priority for the agency since the early 1970s.¹⁶ Some scholars include the JEA among the "relatively ignored structures of Japanese politics."¹⁷ Many believe that the JEA cannot afford to offend industry if the agency hopes to have any influence at all.¹⁸ Japanese participation in negotiations on international environmental problems continues to be dominated by economic ministries.

However, the JEA is gradually achieving its own identity. Until the 1980s, the agency's senior directors were almost entirely former members of the Ministry of Finance and MITI. Many retained their old allegiances, anticipating that they would eventually return.¹⁹ By the 1990s, a growing number of JEA officials expect to spend their career there. In addition, in the annual contest among government agencies to recruit the top graduates of Tokyo University, a growing number have made the JEA their first choice.

In the absence of a shift in national values in favor of environmental protection, the JEA's biggest problem may be the lack of an organized environmental movement. There is no effective political counter to the tightly organized industrial lobby. This was recently

¹¹ Ibid., p. 1.

¹² Japan's Environmentalists. *Environmental Action*, July/August 1986, p. 21.

¹³ Japan. Environment Agency. *Introduction to the Environment Agency of Japan*. [Tokyo] (no date).

¹⁴ Kelley, Donald R., Kenneth R. Stunkel, and Richard R. Wescott. *Politics of the Environment. American Behavioral Scientist*, May-June 1974, p. 765, 766.

¹⁵ Kelley, Stunkel, and Wescott, *Politics of the Environment*, p. 766.

¹⁶ Pempel, T.J. *Policy and Politics in Japan: Creative Conservatism*. Philadelphia, Temple University Press, 1982, p. 234.

¹⁷ Pempel, *Policy and Politics in Japan: Creative Conservatism*, p. 237.

¹⁸ Kelley, Stunkel, and Wescott, *Politics of the Environment*, p. 766.

¹⁹ Woronoff, *Politics the Japanese Way*, p. 266, 267.

tested when, in 1987, the government ended the designation of "victims" under a unique system for compensating people suffering health impacts from air pollution.²⁰ Industry vigorously sought an end to the addition of new persons entitled to compensation, arguing that air pollution had been reduced so effectively that emissions are no longer a significant contributor to health problems.

ROLE OF WOMEN IN THE ENVIRONMENTAL MOVEMENT

Women made up the largest numbers in the anti-pollution movements in the 1960s and 1970s. Women were largely accepted as activists against pollution because they are generally viewed in Japan as the caretakers of the family and of the community. Today, because of the advances in time-saving devices for the home, housewives have more leisure time to devote to community service and political activity. Karl van Wolferen, author of *The Enigma of Japanese Power*, calls Japanese housewives "a potentially important political presence."²¹ Indeed, women have in the 1970s and 1980s provided much of the leadership and energy for the antinuclear movement.²²

On a national level, though, Japanese women "have a lower political profile than in almost any other democratic country."²³ There are even fewer women in the Japanese Diet today than in the 1950s. However, the influence of women on Japanese politics appears to be on the rise, although, as one Japanologist said, "when you start low, there's only one way to go."²⁴ The widespread opposition to the Liberal Democratic Party (LDP) in 1989 has allowed several women, most housewives running on Socialist tickets, to be elected. Women were also instrumental in overthrowing two Prime Ministers linked to sex scandals and in opposing the LDP's consumer tax in 1989.²⁵ Prime Minister Toshiki Kaifu elevated a leading Diet member, Mrs. Moriyama, to a deputy leadership position in 1989 in a move widely seen as catering to the woman's vote. However, following his reelection in 1990, Mrs. Moriyama was not re-appointed, and no other women were included in the cabinet.

ENERGY AND ENVIRONMENTAL POLICY

ENERGY EFFICIENCY

Japan has made remarkable progress toward improving its overall energy efficiency and thus serves as a model for other countries. However, lower oil prices, the strength of the economy since 1986, and the stability of the yen have led to a declining interest in energy efficiency in recent years.²⁶

²⁰ See generally Nakemata, T., and C. du Florey, *Health Effects of Air Pollution and the Japanese Compensation Law*. Columbus, Ohio, Batelle Press, 1987.

²¹ van Wolferen, Karl. *The Enigma of Japanese Power: People and Politics in a Stateless Nation*. New York, Alfred A. Knopf, 1989. p. 52.

²² McQuillan, M., and R. Ulland. The Coming of the Greens. *Japan Economic Journal*, December 23, 1989. p. 28.

²³ Telephone conversation with Margaret McKean, September 14, 1989.

²⁴ Ibid.

²⁵ Curtis, Gerald. (author of *The Japanese Way of Politics*) Lecture. School of Public Affairs, University of Maryland at College Park. September 21, 1989.

²⁶ Choy, Jon. Japan's Energy Policy: 1988 Update. *Japan Economic Institute (JEI) Report*, no. 40A, October 20, 1989. p. 1.

MITI's 1987 energy plan, the most recent in a series issued every four years, emphasized diversification of energy sources to improve the security and adaptability of the economy. (See chart 1.) The consumption of oil was projected to remain relatively constant through FY 2005, while the use of natural gas would increase roughly 50 percent. A 50 percent increase was also planned for coal, spurred by substantial economic incentives.²⁷ (The increase in greenhouse gas emissions implied by this strategy was not addressed.) Abundant world reserves of coal located in nations with stable governments, some of which allow foreign ownership of the coal fields or the companies that control them, more or less assure Japan of a secure supply of fuel.

The energy plan also proposes continued growth in nuclear power, despite growing public opposition. Nuclear power plants are projected to provide 40 percent of the nation's total electricity by the year 2000 and 60 percent by 2030. Japan's nuclear program is now the fourth largest in the world, behind the United States, France, and the U.S.S.R. Japan is one of the few countries with a continued commitment to nuclear power, and some Japanese officials, such as the former Environment Minister, have touted it as a way to reduce greenhouse gas emissions.²⁸ However, the level of opposition to nuclear power has caused considerable concern within the government and industry, although Japan's government is among the least open to popular influence of any of the world's representative governments. Support for continued construction of nuclear power plants has fallen from 62 percent in 1979 to 29 percent in 1988.²⁹ While the government continues to present an optimistic assessment of nuclear power's role in Japan's energy future, even some industry officials have begun to question the likelihood of new plants beyond those already approved.³⁰

Chart 1.

	Percent
Japan's Energy Supply (1986)	
Oil	55.2
Solid fuels	18.4
Nuclear	11
Gas	9.6
Hydro and geothermal	5.7
Dependence on Energy Imports	
Japan	80.1
United States	12.3

Source: Energy Conservation Center in Japan, 1988.

²⁷ Japan. Ministry of International Trade and Industry. Natural Resources and Energy Agency. *Outline of Alternative Energy Policy in Japan*. Tokyo, c. 1987.

²⁸ Japan to Push Ahead with Nuclear Power. *International Herald Tribune*, December 3, 1989.

²⁹ *Japan Quarterly*, January-March 1989, p. 110.

³⁰ Tomitate, Takao. Political Evolution of International Arguments on Global Warming. *Energy in Japan*, February 1990; and, Ikuta, Toyoaki. *Energy: Recent Trends and Future Prospects*. *Energy in Japan*, October 1989.

Japan proudly notes that from FY 1973 to FY 1986, real GNP grew 63 percent while energy demand grew only 6.2 percent.³¹ In addition to a high tax on gasoline, incentives for specified conservation investments included accelerated depreciation or tax credits, reduced property taxes, and loans. Small businesses can obtain energy audits at no charge, and all factories above a minimum size must have a licensed energy engineer on site to promote energy efficiency. Minimum efficiency standards also apply to some industrial processes, new buildings, automobiles, and appliances, supported by consumer labeling.³²

Although official government policy dictates that energy conservation is a primary goal, the Japanese government has cut back on energy conservation initiatives and relaxed some conservation laws. For example, in 1988, the government removed a tax penalty on larger cars as part of recent tax "reform" legislation. Electricity prices, among the highest of any industrialized country, have also been reduced to reflect the declining cost of fuels.³³

The government's campaign to reduce the personal savings rate and increase consumption—a policy designed partly to appease the U.S. Government—has also contributed to growing energy consumption. Energy consuming luxury items and home appliances, such as electric bread makers, full-size refrigerators and microwave ovens, have come into fashion. The campaign comes at a time when the Japanese have decided to enjoy the benefits of economic growth. The Japanese use more disposable goods today such as wooden chopsticks and paper towels. More take showers instead of the traditional Japanese bath, choose to drive rather than ride the subway, and buy bigger houses that cost more to heat in winter and cool in summer.

Clearly, the conservation policies have not been as effective since 1987, and MITI's projections have already been revised upwards. The assumption then was that with a stronger yen/dollar ratio, Japan's economy would move away from energy intensive industries and toward an increasing role for imports and less energy intensive consumer goods. This has not occurred, and energy growth accelerated from 0.4 percent in FY 1986 to almost 5 percent in fiscal years 1987 and 1988. Industrial growth and higher consumer spending have resulted in greater electricity production and consumption. (See chart 2.) MITI has already increased its five-year forecasted rate of demand for petroleum products from 1.3 to 2.3 percent.³⁴ The plan may be a dangerous one if, as many energy experts expect, oil prices rise significantly in the next ten years.

The sharp increases in energy consumption in 1988 and in the beginning of 1989 have forced MITI to address energy issues more seriously. For FY 1990, MITI plans to cut programs that aid energy importation and the domestic coal industry to help fund alternative energy programs. MITI also plans to increase funding for the

³¹ Japan. Ministry of International Trade and Industry. *Japan's Energy Conservation Policy*. Tokyo, April 1988.

³² Choy, Jon. MITI To Revise Energy Demand Outlook. *JEI Report*, no. 19B, May 12, 1989. p. 5-6.

³³ Public Utilities Apply to MITI for Approval to Cut Rates and to Introduce New Concept to Rate System. *Japan Petroleum and Energy Weekly*, November 2, 1989. p. 2-4.

³⁴ *Ibid.*

development and commercialization of solar power, improving safety technology for nuclear power, and the development of more efficient generators, gas turbines, and high-temperature superconductivity technology. MITI may reinstate a summer daylight savings time in Japan, once used during the Occupation, to cut back on the use of air-conditioners which account for the most rapidly expanding sphere of energy consumption.³⁵

JAPANESE ENERGY TECHNOLOGY AND THE ENVIRONMENT³⁶

Following the oil crisis of 1973, government and industry undertook massive conservation efforts that reduced energy use sharply and quickly. These programs addressed virtually every aspect of Japanese activity, ranging from home refrigerators to giant steel mills. Conservation began with simple acts, such as greater use of insulation. It progressed to complex and expensive undertakings including the development of alternative energy technologies. Japan now consumes less energy per unit of GNP than any other nation, the result of a concerted effort on the part of Japanese industry, spurred by government demands and cooperation. New technologies and practices in Japanese industry demonstrate that pollution—even carbon dioxide—can be cut substantially in ways that increase efficiency and lower costs.

Japanese industry has succeeded in reducing energy consumption in three fundamental ways. First, improved measurement and control devices, such as exhaust gas analyzers with information feedback mechanisms that automatically adjust boiler air-fuel ratios, have been installed to minimize energy consumption. Second, waste heat collection systems are being used to capture and reuse heat that would be otherwise vented into the atmosphere. The Japanese use a variety of devices ranging from heat exchangers to automatic frequency controls for electric pumps and blowers.

Finally, energy consumption can be reduced dramatically by changing the production process itself. For example, steel can be rolled either into a product as it comes from the blast furnace without being cooled in the meantime, or allowed to cool, inspected for defects, then re-heated for rolling. The former process, now used at virtually all Japanese steel mills, reduces energy consumption enormously.

A review of several recent technological developments relevant to energy and the environment follows:

Fuel Cells: In a fuel cell, fuel reacts with itself to generate electricity. Producing virtually no sulphur dioxide or nitrogen oxide, this technology holds extraordinary potential for reducing air pollution. Fuel cells can run on a variety of fuels, ranging from coal and oil to hydrogen. Because they are also more efficient than conventional energy technologies, fuel cells have the potential to significantly reduce CO₂ emissions by minimizing fossil fuel consumption. Unlike most other energy technologies, fuel cells may be versatile enough for small-, medium-, or large-scale applications, from

³⁵ Choy, Jon. Japan's Energy Policy: 1988 Update. *JEI Report*, no. 40A, October 20, 1989. p. 12.

³⁶ Information in this section is based on extensive site visits and interviews conducted by the authors in January 1989.

Chart 2.

Total Electricity Output—Thermal, Nuclear and Hydro-electric (in billions of kilowatt hours)	
1980.....	514.05
1985.....	603.93
1987.....	640.16
1988.....	663.40

Total Electricity Consumption (in billions of kilowatt hours)	
1980.....	464.25
1985.....	541.39
1987.....	570.64
1988.....	592.91

Industry and households contributed equally to the rise in total consumption in 1988.

Source: Choy, Jon. Japan's Energy Policy: 1988 Update. *JEI Report*, no. 40A, October 20, 1989, p. 6.

automobiles to central powerplants. They also make almost no noise, given that there are no noisy pistons or controlled explosions of the sort that make gas and diesel engines run.

Fuji Electric and Tokyo Electric are the two largest fuel cell producers in Japan. As of January 1989, Fuji had 11,000 kilowatts of fuel cell projects underway in Japan and 13 projects in the United States and Europe. These projects include commercial electricity generation, production of a fuel-cell powered forklift and development of a fuel-cell powered bus for Georgetown University in Washington, D.C. Fuji believes that it can cut production costs to \$2000 per kilowatt, a price competitive with coal-fired plants, by mass production of standardized components. The company anticipates commercialization of powerplant technology in the mid-1990s.

Tokyo Electric (TEPCO) successfully operated the world's largest fuel cell, a 4.5 megawatt demonstration unit that ran from April 1983 to December 1985 near the heart of downtown Tokyo. TEPCO foresees a large and expanding market based on a leasing program for 200 kilowatt sized units that could supply both heat and electricity. Rather than simply selling electricity, TEPCO plans to sell or lease the product that actually generates the electricity, a revolutionary concept for the utility industry that would be far more cost efficient.

Selective Catalytic Reduction: Selective Catalytic Reduction (SCR) is an end-of-the-stack method that reduces emissions of nitrogen oxide from conventional power plants. SCR is essentially a large-scale version of the catalytic converters employed on automobile tailpipe exhausts. Japanese control systems have been installed in Japan, Austria, and throughout West Germany. This technology is being further developed by the Electric Power Development Company (EPDC), a government-funded corporation created in 1952 whose express objective is to develop power resources that are either large scale or technically and financially daunting.

Fluidized Bed Combustion: EPDC is developing Fluidized Bed Combustion (FBC), an inherently cleaner combustion process that

increases power plant efficiency and reduces air pollution. A finely powdered mixture of coal and limestone is suspended in mid-air by blowing air through it at tremendous velocities. The cooler and more complete combustion which results not only lowers levels of both oxides of nitrogen and sulphur dioxide, but allows the use of a wide range of different fuels. FBC can be coupled with highly efficient turbines to reduce air pollution still further.

Coal Technologies: Since 1980, EPDC has been testing a process to powder coal, then mix it with water to form a combustible slurry. As a liquid, coal could be more easily transported, loaded, and stored. The company also is attempting to develop methods of dewatering low-quality, sub-bituminous and brown coals, which contain too much water to be transported or burned efficiently. The reserves of this fuel are believed to be virtually inexhaustible. Its use would increase CO₂ emissions, but potentially much less than existing coal combustion technologies.

Combined Cycle Power Plants: TEPCO began construction of the world's first large-scale combined cycle power plant in Tokyo in April 1982. Futsu is today one of the world's largest power plants and almost certainly the cleanest. It produces 2000 megawatts of gas-fired electricity but emits virtually no sulphur dioxide and less than one-sixth of the nitrogen based pollution allowed from new plants in the United States.

Three factors account for the extraordinary performance of the Futsu plant. First, it burns liquefied natural gas, one of the cleanest fuels available. Second, it uses a combined cycle system, burning the gas in one turbine, then using the exhaust gases to power a second turbine run by steam. Third, selective catalytic reduction, an add-on device for pollution control, cleanses the exhaust gases of nitrogen oxides. Although other power plants have employed one or two of these approaches, Futsu is the first to use all three. The combination makes the plant a model of simultaneous pollution reduction and increased efficiency.

Nuclear Power: As discussed previously, nuclear power is already Japan's leading source of power, accounting for more than a fourth of the nation's output of electricity. As of June 30, 1988, 35 nuclear plants were already on line and 19 new plants were planned or under construction, although growing questions about the political future of nuclear power in Japan may jeopardize proposals for additional plants. Japan now imports the fuel to supply these reactors. However, if plans for the development of fast breeder reactors proceed on schedule, the nation will become an exporter of fuel within a generation—possibly becoming the first nation in history to bootstrap itself from energy buyer to energy seller.

Automotive Efficiency: Japanese auto manufacturers have increased automotive fuel efficiency substantially since 1973 with decreases in bodyweight, adoption of aerodynamically superior designs, and improvements in engine technology. Toyota, the world's second largest auto manufacturer, is working on several other pollution reduction and efficiency enhancement technologies. One is improvement of the lean burn engine, which simultaneously reduces NO_x emissions while increasing fuel economy. However, due to growing demand for larger cars, declining oil prices, and the

elimination of some incentives for small cars, Toyota has dropped production of its smallest and most fuel efficient car.

Solar Photovoltaic Cells: The Japanese government's New Energy Development Organization (NEDO) supports and coordinates efforts by Japanese industry to develop solar energy. NEDO's efforts center on the development of three technologies. Stand-alone solar systems can be used in remote mountainous areas and islands for electricity generation. Grid-connected systems allow excess power to be fed into the grid, for example in schools, where grid feeds can occur on weekends or holidays. Finally, projects are underway to create utility sites that will both supply and supplement the grid. The key to these applications is the development of high-efficiency, low cost, reliable, and uniform solar photovoltaic cells. These are being developed by Fuji Electric and other companies working for NEDO.

Japan has much to offer the world in the development of innovative technology to clean the environment consistent with economic growth. Indeed, Japan could be doing much more to publicize this aspect of its development as a model for newly industrializing countries.

The prospect of future international environmental accords could have economic benefits for Japan because of its position of technological leadership. A global warming agreement, for example, might help promote markets for high-efficiency appliances and industrial systems. Pressures on developing countries to control their pollution could similarly result in increased orders for Japanese pollution control systems.³⁷ So far these considerations seem to be of less political salience than the possible direct costs of environmental controls on the Japanese economy. Already, discussion of a "green industry" has begun to appear in the Japanese press.³⁸

THE EVOLUTION OF JAPANESE POLICY TOWARD INTERNATIONAL ENVIRONMENTAL AGREEMENTS

THE ROLE OF INTERNATIONAL PRESSURE ON JAPANESE POLICIES

With few exceptions, Japan has been slow to recognize and respond to international environmental problems and agreements. This pattern rises from Japan's tradition as a follower on the international level, its lack of a strong public lobby on the environment, and the strong national political consensus supporting economic growth.³⁹ Recently, however, international pressure has forced Japan to reconsider its position on many environmental issues, including the use of driftnets, importation of ivory and endangered species, the production of chlorofluorocarbons, and global warming.⁴⁰

³⁷ At a March 1990 presentation in Washington, a MITI official described plans to develop somewhat less effective but much less pollution control technology for sale to developing countries.

³⁸ McQuillan and Ulland, *The Coming of the Greens*, p. 26.

³⁹ Miller, Alan S. Three Reports on Japan and the Global Environment. *Environment*, July/August 1989, p. 25-29.

⁴⁰ Murdo, Pat. Japan's Environmental Policies: The International Dimension. *JEI Report*, no. 10A, March 9, 1990, p. 1-16.

Driftnets: U.S., Soviet, and Canadian fishing industries complain of the massive loss of sea trout and salmon due in part to Japanese driftnets—huge nylon nets that cover an area of ocean up to 40 miles wide. The nets are set out overnight, randomly killing dolphins, seals, sea turtles, sea birds, and other marine animals that become entangled in them.⁴¹ In 1989, U.S. environmentalists won a U.S. Supreme Court case to ban Japanese fishing boats in U.S. waters. On September 29, 1989, a subcommittee of the U.S. House of Representatives passed legislation to ban driftnets worldwide. Japan then suddenly announced its intention to reduce the number of ships permitted to use driftnets by two-thirds (to 20), although international opposition to the remaining one-third remains.⁴²

Ivory: Japan is the world's largest importer of ivory, accounting for 38 percent of the world's total. In June 1989, MITI announced a ban on ivory imports from September 20 through the end of 1989. The move followed European and U.S. bans to save the African elephant from extinction and preceded the probable signing of a worldwide agreement.⁴³ On October 30, the Japanese government announced a total ban on ivory trade.⁴⁴

Endangered Species: In 1980, Japan signed the Washington Convention on International Trade in Endangered Species of Wild Fauna and Flora, but had more exemptions to the agreement than any other signatory.⁴⁵ Some of those exemptions, particularly on whales, remain the subject of severe international criticism. However, in 1987, Japan enacted a law on the domestic trade of endangered species to enforce the Convention within the country.⁴⁶ Also since 1987, Japan has agreed to prohibit imports of the green sea turtle, the musk deer and the desert monitor lizard.⁴⁷ Part of the reason that Japan has responded so slowly on these issues is that MITI, the ministry most interested in economic development, has authority over endangered species policy.⁴⁸

Chlorofluorocarbons (CFCs): In September, 1987, more than 20 countries signed the Montreal Protocol on Substances that deplete the Ozone Layer, agreeing to reduce chlorofluorocarbon emissions 50 percent over the next decade to protect the ozone layer. Japan, which consumes more than 10 percent of the world's CFCs, opposed the treaty until only a few months before it was concluded. Japanese industry was skeptical; environmentalists were largely uninvolved, and government research was limited.

Ultimately, Japan decided to take action largely because the United States and Europe had agreed to do so and non-signatories risked adverse trade consequences laid out in the Protocol and in several bills pending in the U.S. Congress.⁴⁹ Once Japan did agree, however, it moved quickly on recycling of CFCs. MITI requested several million dollars for FY 1990 for development of CFC substi-

⁴¹ Fish Mining on the Open Seas. *Time*, June 5, 1989.

⁴² Strip Mining the Seas. *Washington Post*, September 23, 1989. p. A22.

⁴³ *JEI Report*, no. 37B, September 29, 1989. p. 12.

⁴⁴ Japanese to Stop Ivory Trade. *Washington Post*, October 31, 1989. p. A14.

⁴⁵ Putting the Heat on Japan. p. 51.

⁴⁶ *Japan Quarterly*, January-March 1988. p. 112.

⁴⁷ Putting the Heat on Japan. p. 51.

⁴⁸ *Ibid.*, p. 52.

⁴⁹ This conclusion is based on interviews and related research conducted in Japan by one of the authors, Alan Miller, in 1987.

tutes.⁵⁰ The Nissan Motor Corporation promised to phase out CFCs in their automobile air conditioners, and in foaming and cleansing agents if their contractors can develop a non-toxic substitute.⁵¹ Japan now supports an accelerated international phaseout of CFCs.

Global Warming: Japan has shown relatively faster progress in its support of measures to prevent global warming. Japan accounts for about 5 percent of the world's carbon dioxide emissions, following the United States, the Soviet Union and China.⁵² Official recognition of the problem has come unusually quickly. Not only did the JEA address global warming in its 1988 White Paper, but both MITI and JEA have created expert committees to assess the problem and recommend policy responses. Japan has been well represented and active at the principal governmental meetings on climate change. In fact, the Japanese government hosted a major international meeting on the global environment in September 1989, in Tokyo with the support of the Prime Minister's office. MITI, and other agencies have made large funding requests for global warming research. Manufacturers see potential market opportunities in environmental regulation, such as increased sales of fuel cells. Although there is no reluctance to recognize the problem, neither government nor industry have formulated specific policy proposals.

FOREIGN POLICY CONSIDERATIONS

Growing international pressure has forced Japan to take more responsibility for the global environment. With 10 of the world's largest 11 banks, and 53 of the world's 100 largest companies,⁵³ Japan is the second largest financial contributor to developing countries after the United States.⁵⁴ However, much of Japan's aid is tied, going toward infrastructure projects like construction of mines intended to benefit Japan.

The Ministry of Foreign Affairs states that the Japanese government has made "contributions to the globe a national goal." Further, Japan "should take initiatives in the development of international strategies and systems to support remedial efforts in protection of the ozone layer, global warming, protection of tropical forests, prevention of desertification, elimination of acid rain, and protection of endangered wildlife species."⁵⁵ To combat its image as internationally irresponsible, the Japanese government aimed to double its giving in U.S. dollars between 1986 and 1990.⁵⁶ It met this goal by 1989, and also reached its five-year target of \$40 billion in development assistance.⁵⁷ The Official Development Assistance

⁵⁰ Choy, Jon. Initial FY 1990 Budget Requests Up. *JEI Report*, no. 35B, September 15, 1989. p. 9.

⁵¹ Nissan's Efforts to Reduce the Use of Chlorofluorocarbons. *Nissan News*, August 7, 1989.

⁵² Nishioka, Shuzo. *The Japanese Response to Global Warming—Background, Policy & Research Work*. Tokyo, Environment Agency of Japan, National Institute for Environmental Studies, June 1989. p. 2.

⁵³ Global Finance. *Wall Street Journal*, September 23, 1988. Section 3.

⁵⁴ Japan's Foreign Aid Policies. *Bulletin of the Japan-America Society of Washington*, April 1988. p. 4.

⁵⁵ Japan. Ministry of Foreign Affairs. Overseas Public Relations Division. *Japan's Approach to Environmental Issues of the Globe*. Tokyo, September 1989. p. 1.

⁵⁶ Japan's Foreign Aid Policies, p. 4.

⁵⁷ Nectoux, Francois, and Yoichi Kuroda. *Timber from the South Seas*. London, WWF International, April 1989. p. 88.

(ODA) Plan for 1988-1998 is to increase the proportion of aid as a percentage of GDP to 0.35 percent and to increase giving to \$50 billion.⁵⁸ In September 1989, Prime Minister Toshiki Kaifu also pledged approximately \$2.25 billion in environmental aid alone over the next three years.⁵⁹ Despite these increases, Japan's percentage of aid still lags behind that provided by most members of the Development Assistance Committee (DAC) of the Organization for Economic Cooperation and Development (OECD). Japan ranks 15th among the 18 member nations.

A central problem with Japanese development aid is that no single administrative body has the experience or the authority to supervise all the development programs. Moreover, there is no general law on foreign aid that would help the many institutions coordinate their efforts.⁶⁰ While the Ministry of Foreign Affairs is the official coordinating body, numerous ministries and agencies are involved in the decision making process. Japan's International Cooperation Agency, the Overseas Economic Cooperation Fund, The Ministry of Agriculture, Forestry, and Fisheries, and the Ministry of Finance each participate in some aspect of project selection, definition, appraisal, monitoring or funding. As a result, implementation, appraisal and monitoring 61 of on-going projects and evaluation of finished projects is poor.⁶¹

As discussed above, Japan's aid policies will have to evolve as part of a process of establishing a position in international affairs commensurate with its new economic power. By some accounts, "Tokyo's hesitation to act has less to do with an insider's lack of concern for the outsider's problem and more to do with never before being faced with a leadership role in these areas."⁶²

⁵⁸ Japan Plans \$1 Billion in Aid for Mexico to Combat Severe Air Pollution. *Washington, Post*, August 30, 1989, p. A37.

⁵⁹ Japan's Approach to Environmental Issues of the Globe, p. 3.

⁶⁰ *Timber from the South Seas*, p. 87, 88.

⁶¹ *Ibid.*, p. 91.

⁶² Murdo, Japan's Environmental Policies, p. 1.

VI. NATIONAL SECURITY AND FOREIGN AID

DEFENSE POLICY

By Larry Niksch ¹

CONTENTS

	Page
Introduction	353
U.S. Proposals to Japan in 1981	354
U.S. Strategic Concepts Behind the Proposals	356
Perceived Japanese Role in U.S. Strategy	357
Japan's Defense Policies and Capabilities in 1981	357
Changing Japanese Attitudes	357
Suzuki's Promises and the Japanese Buildup	358
Assessment of Japanese Military Capabilities	360
The Future: Will Japan Become a Military Power?	362
Impact of Improved East-West Relations	363
Impact of a Probable Worsening of U.S.-Japanese Economic Relations	365
Military Implications of Japan's Expanding Role in East Asia	366
Unilateral Defense Options	367

INTRODUCTION

U.S.-Japan defense relations are a complex and increasingly difficult issue between the two countries as they prepare to enter the 1990s. During the previous decade, the U.S.-Japan defense relationship was governed by a set of American proposals which the Reagan Administration made to Japan in 1981 and which were based primarily on U.S. Government perceptions of the military situation in the Western Pacific. Japanese defense policy in the 1980s was aimed primarily at attaining some of the broad goals of the U.S. proposals. However, as the 1990s begin, the relationship has acquired a number of aspects that are only indirectly, or not at all, related to the military-strategic situation in the Western Pacific.

Much of today's public pronouncements, parliamentary debates, media coverage, and even government-to-government negotiations emphasize financial (burden sharing), economic, and competitive technological factors.

These other factors are assuming an equally important place in the defense relationship. In the future they may affect the priority given to military-strategic cooperation and objectives. Moreover,

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the Soviet Union, the primary target of U.S.-Japan defense cooperation, shows signs of modifying (though not abandoning) its highly military-oriented policy toward the Western Pacific. If this continues and if East-West relations improve on a substantial basis, the anti-Soviet rationale of the U.S.-Japan defense relationship will likely erode.

U.S. PROPOSALS TO JAPAN IN 1981

In the first half of 1981, officials of the Reagan Administration initiated discussions with the Japanese Government over Japan's future defense policy. U.S. officials laid out proposals for an expanded Japanese defense role in the Western Pacific that would complement the American military presence and U.S. strategy against the Soviet Union.

The Reagan Administration's proposals had four components:

- (1) A broadening of the geographical region that would fall under Japan's defense responsibilities.
- (2) A set of military missions that Japan would be capable of undertaking.
- (3) A proposed force structure that would give Japan the capabilities to expand geographical and mission responsibilities.
- (4) A concentration of defense efforts on the Soviet Union.

During his March 1981 visit to Tokyo, Secretary of Defense Caspar Weinberger stated that Japan should develop the defense of a large area of the Northwest Pacific about 1,000 miles out from Japan. This zone would encompass the waters between Japan and the Philippines, swinging east from the Philippines to Guam (see figure 1, next page).²

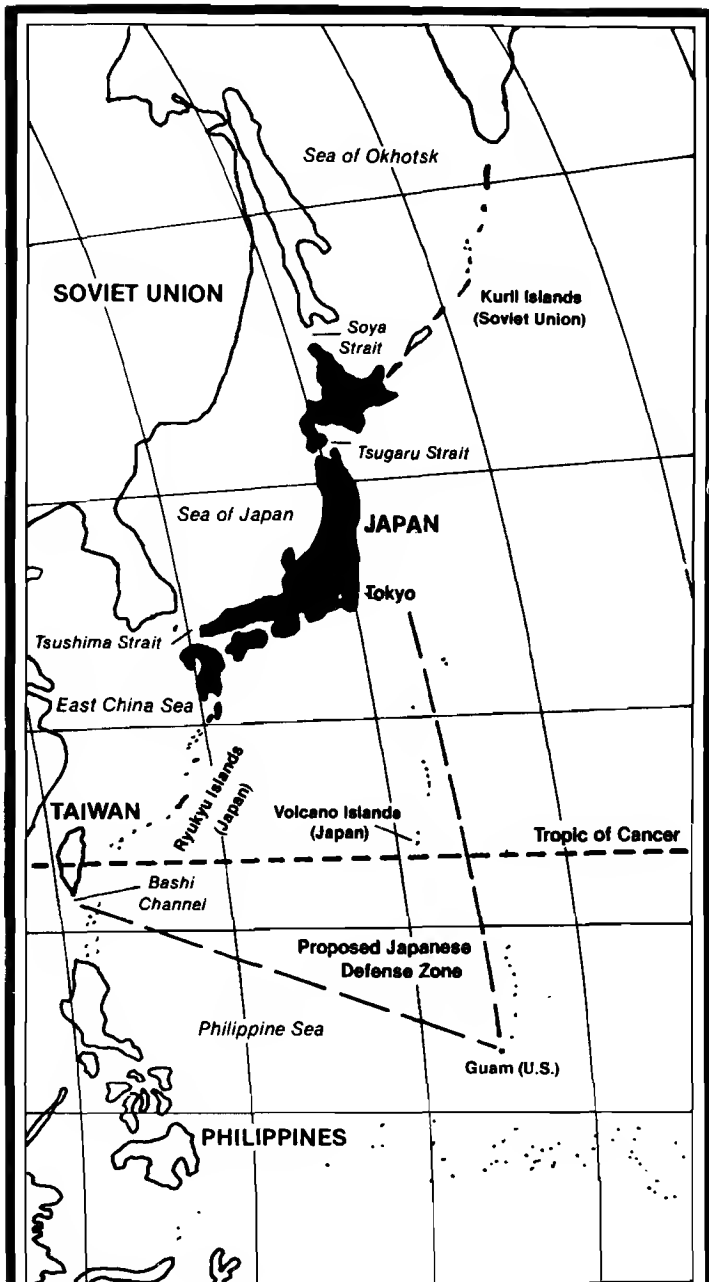
U.S. officials subsequently described the following three missions for which primary responsibility would fall to Japanese naval and air forces.³

- (1) Sea Control: the protection of the sea transport routes within the defense zone. It would require actions against Soviet submarines, surface ships, and aircraft over a wide ocean area. U.S. officials emphasized the need for effective Japanese defense against Soviet submarines and Backfire bombers.
- (2) Strait Control: the mining and blockading of the Tsushima, Tsugaru, and Soya Straits connecting the Sea of Japan with the open waters of the Pacific, thus preventing access by Soviet naval vessels from bases in eastern Siberia into the Pacific.
- (3) Air Defense: establishing an air defense screen in the Japanese home islands and over part of the Sea of Japan that could inflict heavy losses on Soviet fighters and long-range bombers. An effective air defense screen would facilitate the task of sea control by weakening Soviet air strike capabilities against U.S. and Japanese bases and against naval vessels and merchant ships south and east of Japan.

² *Asahi Shimbun* (Tokyo), March 28, 1981; *The Times* (London), March 31, 1981. See also the statement by Assistant Secretary of Defense Francis West before the House Subcommittee on Asian and Pacific Affairs, March 1, 1982.

³ *Ibid.*

Figure 1.
Proposed Japanese Defense Zone



At the Japan-U.S. Security Conference in Hawaii in June 1981, U.S. officials put forth their force structure ideas. These called for revisions in several components of Japan's 1976 defense program. The key elements were:

- (1) The addition of four squadrons of F-15 fighters to the ten squadrons of modernized fighters targeted in the 1976 defense program.
- (2) An increase in Japan's force of destroyers and frigates to 70 vessels with substantial modernization in air defense and anti-submarine capabilities.
- (3) An increase in the number of attack submarines from Japan's target of 16 to 25.
- (4) The establishment of an anti-submarine aircraft force of 125 P-3Cs, the mainline anti-submarine aircraft of the U.S. Navy.
- (5) The establishment of a three-month supply of ammunition.

Weinberger indicated to the Japanese in March 1982 that Japan should attain this kind of force structure by 1990. He declared that such a buildup "will require substantial improvements in military capabilities and increases in defense spending substantially greater than the current annual growth rate." U.S. officials who accompanied the Secretary asserted to reporters that Japanese defense expenditures would have to increase at least ten percent annually in real terms in order to develop these assets.⁴

U.S. STRATEGIC CONCEPTS BEHIND THE PROPOSALS

The U.S. proposals to Japan had their origins in a strategic concept that emerged during the Carter Administration among Department of Defense specialists. This strategic concept, in turn, was modified and broadened by Reagan Administration strategists. It was founded upon a perception of growing Soviet offensive military capability in the Northwest Pacific, instability in the Persian Gulf region, and a potential expansion of missions of U.S. Pacific forces into the Indian Ocean and Persian Gulf.

Under the Reagan Administration the Pentagon developed a multi-faceted military strategy for fighting the Soviet Union in the Western Pacific as part of a global conflict. The primary emphasis was the planning of defense against the Soviet air and submarine threats. American strategy stressed the ability to establish and maintain control over broad ocean areas and key sea and air transport routes. The key sea control mission would be anti-submarine warfare. U.S. strategists also gave priority to the ability to block and interdict Soviet forces attempting to move into the Pacific from eastern Siberia. In their view, the strategy would involve both the capacity to absorb an initial Soviet attack and the means to wage a naval and air war of attrition over a period of several weeks or months.⁵

⁴ *New York Times*, March 27, 1982.

⁵ *New York Times*, April 11, 1982; May 30, 1982; and June 7, 1982; Reagan Defense Plan Stresses Detering the "Soviet Threat." *Congressional Quarterly*, April 10, 1982. p. 791-796.

PERCEIVED JAPANESE ROLE IN U.S. STRATEGY

U.S. strategists envisioned that in wartime U.S. anti-submarine forces in the Western Pacific would defend the southern sea transport routes extending from Hawaii to the Southeast Asian straits. The Defense Department viewed Japan as appropriate to take on a major anti-submarine burden further north. This view provided the basis for the proposal that Japan assume the defense of the Northwest Pacific sea zone 1,000 miles out from the Japanese home islands.

Japan's role in air defense also was linked to this sea control mission and was viewed by U.S. defense officials as equally important. The main objective was to prevent the Soviet bomber force, particularly Backfire bombers, from penetrating the Pacific from Siberia to attack U.S. battle groups, U.S. bases, military and civilian shipping, and targets in Japan such as ports. The strategy, according to Secretary Weinberger, was to construct U.S. and allied "barriers" against Soviet land-based bombers in the Western Pacific and elsewhere, stressing the role of land-based interceptor aircraft and surveillance systems.⁶

The proposal that Japan be able to close the Sea of Japan Straits also was intended to hinder the Soviets in deploying additional submarines and surface ships into the Pacific. It also would deny to Soviet forces in open waters access to most of their home bases.⁷

JAPAN'S DEFENSE POLICIES AND CAPABILITIES IN 1981

Japanese defense policy and capabilities in 1981 were based on an umbrella defense plan or Outline, which the government adopted in 1976. It set forth the principle that the Japan Self-Defense Forces (SDF) must be able in wartime to repel "limited and small-scale aggression" without external assistance, an objective far more limited than that of the missions proposed by the Reagan Administration in 1981. Any Japanese response to the U.S. proposal would require a significant Japanese buildup and strengthening of its forces. A Pentagon team headed by Assistant Secretary of Defense David MacGiffert asserted at a U.S.-Japanese security conference in July 1980 that Japan did not possess even a minimum deterrent and could not defend against even a small-scale attack.⁸ Later, the U.S. view also held that Japan's actual military forces fell short of being able to carry out the U.S.-proposed missions.

The Japanese Self-Defense Forces in 1981 contained much obsolete equipment and suffered from severe logistical problems and shortages of ammunition and spare parts. The SDF had few reserves and no integrated command and control system.

CHANGING JAPANESE ATTITUDES

A web of constraints, which had evolved since Japan's defeat in World War II, led Japan to adopt its minimal defense policy and

⁶ Weinberger Posture Statement for FY 1984, p. 145; Senate Foreign Relations Committee, *East-West Relations: Focus on the Pacific*, p. 72-73.

⁷ *New York Times*, January 14, 1981; *Washington Times*, June 2, 1982; U.S. Congress, Senate Foreign Relations Committee, *East-West Relations: Focus on the Pacific*. Testimony of Admiral Halloway; Brown, Harold, *Department of Defense Annual Report, Fiscal Year 1981*, p. 168.

⁸ Kyodo News Service, July 4, 1980.

contributed to Japan's military weakness. Japan's defense policy in 1980 also was influenced by Japanese perceptions of their security situation and governmental priorities. Four themes dominated Japan's attitudes toward defense issues prior to 1980:

- (1) Pacifist sentiment which grew out of defeat in 1945, embodied in Article 9 of the 1947 Constitution, which prohibits Japan from maintaining military forces.
- (2) Reliance on the United States for defense.
- (3) The perceived absence of an external threat.
- (4) The view that Japan should invest its resources in the economy rather than the military.

The Japanese public opposed a military buildup. Public opinion polls during the 1976-1981 period found that 40 percent to 70 percent of the public opposed an expansion of the military while, at best, 30 percent favored such actions. The press and most opposition political parties favored either major restrictions on the Self-Defense Forces or its abolition.

By 1981, however, these attitudes were under challenge. The Foreign Ministry, the Defense Agency, and some members of the ruling Liberal Democratic Party began to voice concern over American military withdrawal from East Asia in the post-Vietnam War period and the buildup of Soviet military strength in Japan's immediate vicinity. They also displayed concern over Soviet intentions after Moscow's invasion of Afghanistan. The Foreign Ministry and the Defense Agency pushed for larger increases in defense spending. This set the stage for Japan's response to the Reagan Administration's proposals during the Reagan-Suzuki summit meeting of May 1981.

SUZUKI'S PROMISES AND THE JAPANESE BUILDUP

At the summit, Prime Minister Suzuki took two actions which indicated a partial acceptance of American proposals for a Japanese defense buildup. He stated in Washington that the Japanese defense role would cover "several hundred nautical miles of surrounding waters and 1,000 miles of sea lanes from our shores." He also stated in a joint communique with President Reagan that Japan and the United States should establish an "appropriate division of roles" to ensure peace and stability in the Far East, and he promised "even greater efforts for improving its [Japan's] defense capabilities in Japanese territories and in its surrounding sea and air space."

Under Suzuki and even more so under his successor, Prime Minister Yasuhiro Nakasone, Japan responded to U.S. proposals through three defense plans covering the period 1980-1990. The plans (actually overlapping five-year plans) initially had an ambiguous status. They were approved by the Cabinet-level National Defense Council but were described as internal JDA estimates rather than official government plans. The Nakasone Cabinet decided to upgrade the plan for 1986-1990 to an official government plan.

The plans called for stepped-up procurement of front-line weapons and equipment for all elements of the Self-Defense Forces. The JDA used the plans as the basis for the formulation of annual budget requests. It oriented the plans and annual budget requests

in favor of front-line air and sea weaponry. Defense spending increased by a rate of around 6 percent annually during the decade; in real terms, the increase amounted to slightly over 5 percent annually.⁹ The defense budget reached a level of about \$31 billion annually by 1989. Spending remained around 1 percent of Gross National Product (GNP), although the Government in 1987 abolished the policy in effect since 1976 of keeping defense expenditures below 1 percent of GNP.

The major procurement and modernization goals of the three plans combined for air and sea defense are:

(1) Air Defense: The Air Self-Defense Force would establish and modernize twelve squadrons of fighter interceptors. Eight squadrons of F-15 fighters, totaling 187, would replace the obsolete F-104s. Approximately 100 F-4s would make up the remaining four squadrons. Japan would modernize the F-4s by adding newer surface attack equipment and sophisticated air combat electronic equipment and missiles. The Air Self-Defense Force would have 13 E-2C early warning aircraft. Japan would replace five of the six antiquated Nike J surface-to-air missile batteries with Patriot missiles.

(2) Naval Vessels: The destroyer/frigate force would total 62 by the end of the 1986-1990 plan. Forty existing destroyers and frigates would be outfitted with U.S.-designed Tartar or Sea Sparrow surface-to-air missiles. Two of the destroyers are to be equipped with the U.S. AEGIS air defense system. Attack submarines are to total 16 by the end of the 1986-1990 plan.

(3) Anti-submarine Aircraft: Japan would have a force of 100 P-3Cs, organized into ten squadrons. The Maritime Self-Defense Force would have a force of nearly 90 anti-submarine helicopters by 1990.¹⁰

The defense plans did not set specific goals for improvement of logistics, but the JDA and Prime Minister Nakasone disclosed in May 1983 that the JDA would seek a buildup of ammunition stockpiles to a level adequate for one month of combat.¹¹

Procurement statistics indicate that Japan is roughly on schedule in authorizing the purchase of these major items of these weapons.¹² These should be on-line in the Self-Defense Forces in the early 1990s.

The 1986-1990 plan has placed a new emphasis on the defense of Hokkaido, Japan's northernmost islands, through a modernization of the weapons and equipment of the Ground Self-Defense Force. JDA officials stated that the Soviets could land three to five divisions on Hokkaido.¹³ The stress on Hokkaido's defense in the 1986-

⁹ Prepared testimony on Japanese Defense by Dr. Karl D. Jackson, Deputy Assistant Secretary of Defense (East Asia and Pacific Affairs) before the Subcommittee on Asian and Pacific Affairs of the House Committee on Foreign Affairs, October 13, 1988. (Hereinafter referred to as Testimony of Dr. Jackson.)

¹⁰ U.S. Library of Congress. Congressional Research Service. *Japan's Military Buildup: Goals and Accomplishments*. Report No. 89-68 F, by Gary K. Reynolds. Washington, 1989. p. 5-8. (Hereinafter referred to as Reynolds, *Japan's Military Buildup*.) This gives an assessment of the current 1986-1990 plan.

¹¹ *The Daily Yomiuri* (Tokyo), May 23, 1983; Interview with Prime Minister Nakasone on the NHK television network, May 16, 1983.

¹² Reynolds, *Japan's Military Buildup*, p. 5-10.

¹³ JIJ Press Service (Tokyo), February 6, 1986.

1990 plan corresponded with the emergence of defense plans to beat back an invasion at sea and prevent the landing of troops.¹⁴

ASSESSMENT OF JAPANESE MILITARY CAPABILITIES

Japanese conventional military capabilities upon the completion of the 1986-1990 plan will be greater in several respects than in 1980 and also improved in comparison with U.S. and Soviet conventional capabilities in the Western Pacific. Improvements have been noted in surveillance, defense against a Soviet conventional air attack, and sea lane control. There also, however, will be several serious weaknesses in the Japanese ability to fulfill the missions assigned to Japan by the 1981 U.S. proposal.

With respect to surveillance, Japan will have significant anti-submarine and anti-air assets in the P-3Cs and early warning aircraft. If Japan installs an over-the-horizon radar network, which the Defense Agency currently is studying, aircraft surveillance would be expanded to include most of eastern Siberia.¹⁵

Japan will have a modern air defense system in the home islands by the early 1990s. Japan's nearly 200 F-15 fighters will be duplicates of the U.S. Air Force's F-15 in terms of the speed and maneuverability of the aircraft itself and armaments.¹⁶ The force of 100 modernized F-4s will possess advanced electronics and weapons.¹⁷ If, as the JDA presently indicates, Japan acquires refueling tanker aircraft in the early 1990s, the Air Self-Defense Force will be able to maintain a proportion of its air defense fighters constantly in the air on patrol, thus potentially reducing the response time to any approaching Soviet air attack.¹⁸ The new Patriot surface-to-air missile system will represent a significant advance over the present 1960 vintage Nike-J missiles.

U.S. defense officials believe that this combination of F-15 fighters, refurbished F-4s, early warning aircraft, and surface-to-air missiles will constitute greater opposition to Soviet bombers attempting to penetrate the Pacific over the Japanese home islands or through the southern end of the Sea of Japan which separates Japan and South Korea.¹⁹ The Japanese air defenses will constitute a first echelon, which Soviet bombers would have to break through before facing a second echelon of American aircraft carriers and ship-based fighters and surface-to-air missiles.

Analysts believe that Japan's sea lane control capabilities have improved too, despite the Soviet modernization of attack submarines in the 1980s. By the early 1990s, Japan's anti-submarine aircraft force of 100 P-3Cs and anti-submarine helicopters will exceed those that the United States has maintained in the Northwest Pacific.²⁰ Sea search radar on Japan's anti-submarine aircraft are as

¹⁴ *Nihon Keizai Shimbun* (Tokyo), January 1, 1988; Japan Defense Agency. *Defense of Japan 1988*, p. 96-104.

¹⁵ Auer, Japan's Defense Policy, p. 147-148.

¹⁶ Auer, Japan's Defense Policy, p. 147; Matsukane, Hisatomo. Japan and the Security of the Sea Lanes. *Global Affairs*, Spring 1989, p. 61.

¹⁷ Auer, Japan's Defense Policy, p. 147.

¹⁸ Japan Defense Agency. *Defense of Japan 1988*, p. 95.

¹⁹ Testimony of Dr. Jackson.

²⁰ The U.S. Navy only has slightly over 100 P-3Cs to cover the entire Pacific and Indian Oceans. No more than a third of the total, and usually less, are assigned to the Western Pacific.

advanced as U.S. and European counterparts, according to one recent analysis.²¹ The Maritime Self-Defense Force has organized four escort flotillas to patrol sea lanes and provide convoys for shipping to Japan. Each flotilla is composed of nine vessels; and a reorganization calls for two anti-submarine helicopter-bearing destroyers, two guided-missile destroyers for air defense, and five multi-purpose destroyers.²² The Maritime Self-Defense Force is developing new shipboard anti-submarine torpedoes for surface ships and is equipping them and submarines with the new TASS sonar system, which is supposed to extend the geographical scope of surveillance.²³

On the negative side, several gaps apparently will remain in Japanese capabilities. There are five main weaknesses: (1) weaknesses in naval air defense, (2) inadequate stockpiles, (3) limited ability to close off the Sea of Japan straits, (4) deficiencies in command and control, and (5) lack of reserve forces. Several U.S. and Japanese experts believe that the Maritime Self-Defense Force remains weak in defense against air attacks by aircraft or submarine-launched missiles. They acknowledge the JDA's effort to improve ship air defense through plans to procure two AEGIS-equipped destroyers during the current five-year plan, to arm P-3Cs with air-to-air missiles, and to place anti-missile guns aboard most destroyers. Nevertheless, they criticize the lack of aircraft in the Maritime Self-Defense Force and the absence of coordination with the Air Self-Defense Force. They stress the need for Japan to install over-the-horizon radar and additional early-warning aircraft in order to lengthen warning time available to Japanese naval vessels.²⁴

Japan continues to have inadequate stockpiles of ammunition, missiles, spare parts for weapons, transportation equipment, and fuel. Budgetary constraints appear responsible for this. It is not likely that Japan has attained in these areas a general target of one month of combat sustainability—without major resupply.²⁵ (That target is short of the three-month target proposed by the Pentagon in 1981.) The JDA has stated that stockpiles "are not necessarily sufficient for the SDF" and that this "has a fatal effect on the performance of SDF's capabilities."

Japan has not developed adequate assets with which it could close off the Sea of Japan straits. This is especially true of attack submarines. Japan's attack submarine force will number only 16 by the early 1990s, far fewer than the 25 proposed by the Reagan Administration in 1981. Submarines would be crucial to closing off the straits successfully. In the Soya Strait, which separates Hokkaido from Soviet Sakhalin Island, other equipment like anti-submarine aircraft and mine-laying planes and ships would be vulnerable to Soviet attacks. Japan would have to rely on submarines to

²¹ Young, P. Lewis. Japan's Maritime Self-Defense Force. *Navy International*, March 1987. p. 167.

²² Ebata, Kensuke. Ocean Defense Japanese Style. *U.S. Naval Institute Proceedings*, March 1987. p. 98.

²³ Jacobs, G. Japan's Maritime Defence Programmes. *Navy International*, March 1987. p. 166-167; Japan Defense Agency. *Defense of Japan 1988*, p. 105-106.

²⁴ For example, see: Young, Japan's Maritime Self-Defense Force, p. 164; Ebata, Ocean Air Defense Japanese Style, p. 98-101.

²⁵ Doi, Hiroshi. Self-Defense is Enough. *U.S. Naval Institute Proceedings*, March 1987. p. 95.

attack enemy submarines and surface vessels from under the surface.²⁶ Similar problems also could arise in the Tsugaru Strait.

Command and control deficiencies would hamper the Japanese in any broad-based defense against Soviet attacks, according to many analysts. The Self-Defense Forces have no unified command. The individual services often plan operations independently.²⁷ Potential geographical theatres of warfare, such as Hokkaido, do not have unified commands or commanders. The United States and Japan have made progress in joint planning and in gaining familiarity through increasingly sophisticated joint exercises. Nevertheless, there is no joint command comparable to the NATO command or the Combined Forces Command in South Korea.

Finally, Japan possesses practically no reserve forces. Heavy initial fighting undoubtedly would create the need for replacement of manpower that Japan could not fulfill. Reserve forces total only 46,400, nearly all in the ground forces.²⁸ The Defense Agency has acknowledged that Japan's reserves have "a considerable gap compared with that of other countries."²⁹

THE FUTURE: WILL JAPAN BECOME A MILITARY POWER?

Japanese defense policy stands at a crossroads after a decade of a steady buildup of military strength heavily influenced by the United States. New factors are emerging that will affect Japanese defense policy and sometimes compete with the traditional factors of the anti-Soviet rationale, the priority given to good relations with the United States, and post-World War II pacifism. The Japanese Government likely will formulate defense policy in the 1990s in the context of at least three new factors:

(1) The improvement of East-West relations in Europe, and Western perceptions of a declining Soviet threat, and pressures in the United States to withdraw military forces from overseas.

(2) Worsening U.S.-Japan economic relations and the disintegration of the U.S. consensus of the 1980s the Japan should increase its military strength.

(3) Expanding Japanese political and economic roles in the East Asian region.

Each of these factors will influence Japan to make decisions on future defense policy more independently—but how much more independently cannot be predicted with certainty and will depend on exactly how the three factors develop and interact with each other.

The United States still will have an interest in influencing the direction of Japan's defense policy. However, it will face new choices in determining the kind of Japanese defense policy most parallel to U.S. interests and the appropriate strategy to exercise influence. This, in turn, will depend on the kinds of decisions

²⁶ *Mainichi Daily News* (Tokyo), July 15, 1986; Japanese Center for Strategic Studies. *Report on the Defense of the Three Straits In and Around Japan*. Tokyo, 1989. p. 14, 21-22. (Hereinafter referred to as JCSS, *Three Straits Defense*.)

²⁷ Kosaka, Masataka. *The Defense Policy of Japan. NATO's Sixteen Nations*, December 1985-1986. p. 21; and, JCSS, *Three Straits Defense*, p. 30-32, 40.

²⁸ International Institute for Strategic Studies (London). *The Military Balance*, 1988-1989. p. 164-165.

²⁹ Japan Defense Agency. *Defense of Japan 1988*, p. 112.

which Washington makes regarding its economic relations with Japan and its own military presence in the Western Pacific.

IMPACT OF IMPROVED EAST-WEST RELATIONS

The improvement of East-West relations in Europe already is eroding the anti-Soviet rationale in U.S. defense policy. The Bush Administration and especially Congress is judging overall Soviet foreign and military policies largely on the basis of the changes in Soviet policies in Europe and at home. They stress perceived Soviet intent rather than military capabilities. If tensions in Europe continue to ease, the anti-Soviet rationale would decline further. Japan thus would face the problem of adjusting its policies to changes in American attitudes and policies driven primarily by trends in Europe, which may or may not coincide with the security situation in the Northwest Pacific and the state of Japanese-Soviet relations.

Although the U.S. and Japanese governments have had slightly differing perceptions over the precise nature of the Soviet military threat in the Northwest Pacific, the anti-Soviet rationale has been a principle unifying force in the defense relationship. In accepting the Reagan Administration's anti-Soviet rationale in the early 1980s, more fundamental anti-Soviet attitudes emerged in Japan outside of U.S. security policy—specifically, the resurfacing of deep historical animosity towards the Russians dating from the 19th century and early 20th century imperial rivalries, and Japan's claim to the islands north of Hokkaido seized by the U.S.S.R. at the end of World War II. As Japan built up its defenses and strengthened military cooperation with the United States, the Government adopted a tough position that Japan-Soviet relations could not improve until Moscow returned all the islands (the "northern territories"). In 1988 and 1989, the Japanese Government has put more emphasis than the United States on the Soviet military threat in the region around Japan³⁰—a reversal of U.S. and Japanese roles before 1988 when Washington spoke constantly of the Soviet military buildup.

Some Japanese, including government officials, argue that Japan should not be left out of an improvement in East-West relations. Certain newspapers, some businessmen, opposition political parties, and certain elements of the Liberal Democratic Party state this theme. Although none of these groups advocate that Japan abandon its claim to the northern territories, some would de-emphasize the issues in negotiations with Moscow.

By mid-1990, the Government began to respond to these pressures by stating that the Soviet threat had declined. Nevertheless, it would appear that any substantive improvement in Japan-U.S.S.R. relations in the near future will depend on an agreement on the disputed islands that satisfies Japan's objectives.

Gorbachev's visit to Tokyo, scheduled for March 1991, could be crucial to the future of Soviet-Japanese relations and thus also to Japanese defense policy. Soviet officials have indicated that he will make arms reduction proposals to the Japanese. If he proposes

³⁰ Japan Defense Agency. *Defense of Japan 1989*, p. 37-49.

arms reductions as part of a package including a return of the islands and economic cooperation, arms reduction undoubtedly would be more attractive to the Japanese.

The Japanese Government said in December 1989 that it would not reject an arms reduction negotiation with the Soviet Union: a reversal of its previous position.³¹ An arms reduction negotiation would confront Japan and the United States with the problem of coordinating positions, which could be initially different. Japan might emphasize a lowering of Soviet conventional military forces in the Soviet regions adjacent to Japan, whereas the United States likely would stress Soviet long range nuclear missile submarines stationed in the Sea of Okhotsk. The United States currently opposes negotiations over naval arms reductions, which could be a key item in any Soviet proposal. Moreover, Soviet proposals likely would affect some U.S. military bases in Japan, and any negotiation of territorial arms reduction no doubt would involve the U.S. air base at Misawa in northern Honshu and possibly the naval base at Yokosuka, where a U.S. aircraft carrier is homeported.

Improved Soviet-Japanese relations, possibly on the basis of a formula of return of the islands and arms reduction, could result in reduced defense cooperation between Japan and the United States. However, Japanese policy toward the Soviet Union likely would be in line with general trends in East-West relations, which could contribute to continued Japanese-U.S. cooperation of a primarily political nature and less of a military nature. Soviet nuclear capabilities still would make attractive to the Japanese the protective U.S. nuclear umbrella regardless of Soviet policies toward conventional forces.

On the other hand, if the Soviet Union refuses to return the islands³² and maintains a strong military presence in eastern Siberia and on the islands near Japan, the Japanese Government no doubt will continue to strengthen Japanese air defenses, anti-invasion forces on Hokkaido, and naval forces oriented to sea lane control. If, concurrently, Soviet-NATO confrontation continue to ease in Europe, the United States would face the decision of whether to support Japanese defense measures and maintain a forward U.S. military presence in coordination with Japan, or whether to reduce defense cooperation with the Japanese in order to bring U.S. security policy in the Western Pacific more in line with the European focus of U.S.-Soviet relations. If the United States opted for the later course, it might deemphasize joint military planning and joint exercises. The United States also might withdraw some combat forces from Japan that figure highly in anti-Soviet defense strategy. Washington might enter into Northwest Pacific arms reduction talks with the U.S.S.R., largely by-passing Japan.

³¹ *Sankei Shimbun* (Tokyo), December 27, 1989.

³² Gorbachev's hard line against Lithuania's independence may signal an unwillingness to give back another World War II territorial gain to Japan. If he crushes the Lithuanian and Baltic movements and maintains working relations with the United States and Western Europe, Gorbachev may conclude that he has little to lose in East-West relations by maintaining the status quo on the islands.

IMPACT OF A PROBABLE WORSENING OF U.S.-JAPANESE ECONOMIC RELATIONS

If the anti-Soviet rationale for U.S.-Japan defense cooperation continues to decline, other issues in the relationship, especially economic disputes, no doubt will have a growing impact over how each government deals with defense issues. By the end of the 1980s, the rising level of the trade dispute had brought about a shift in U.S. policy to emphasize financial burden sharing issues in the defense relationship. The most visible of these was a mounting U.S. demand that Japan pay a growing share of the \$7 billion cost of maintaining over 50,000 U.S. troops in Japan. Another result of the trade dispute was mounting opposition in Congress and elsewhere to U.S. collaboration with Japan in manufacturing Japanese weapon systems. This was demonstrated by the U.S. debate over the FSX fighter plane, which produced a good deal of political bitterness on both sides.

A continuation or further intensification of economic disputes undoubtedly would erode political support for defense cooperation. On the U.S. side, there are at least three likely outcomes of such a trend. First, the sentiment would grow that Japan should pay all the costs of U.S. forces in Japan, except perhaps the salaries of American military personnel. This would likely evolve into an open objective of the Bush Administration (or a successor administration), which so far has been ambivalent on what Japan should pay. Second, it could contribute to pressures to withdraw sizable numbers of U.S. troops from Japan and eventually to sentiment for revising or ending the Japan-U.S. Security Treaty,³³ if worsening economic relations run parallel with better U.S.-Soviet relations.

Third, it would intensify the breakdown since 1987 of the U.S. consensus of the 1980s that Japan should increase its military strength. The U.S. reaction to Iraq's invasion of Kuwait has included demands that Japan send military forces to the Persian Gulf. Nevertheless, an emerging view holds that a Japanese military buildup in the 1990s would enhance the possibility that the Japanese Government would end its ban on the export of arms and become a competitor of the United States in the world's weapons market. There is even fear in the U.S. Congress and elsewhere that Japan may become a military threat to U.S. interests in East Asia, and that the United States will have to contain Japan in the 1990s. Both President Bush and former President Nixon have implied the need to contain Japan in justifying their advocacy of close U.S. relations with China.³⁴ The U.S. Marine commander on Okinawa has stated that the United States will have to maintain forces in Japan in order to prevent "a rearmed, resurgent Japan."³⁵ He may have

³³ *Washington Times*, April 2, 1990. Professor Chalmers Johnson (of the University of California—San Diego), a leader of the so-called revisionist school of Americans highly critical of Japan, stated in a speech in Tokyo that the U.S.-Japan Security Treaty was out of date because of the changes in East-West relations and in U.S.-Japan relations.

³⁴ For an analysis of Bush's statement, see Nayan Chanda's article in the *Christian Science Monitor*, February 15, 1990. Nixon's statement was contained in a memorandum which he circulated after his October 28–November 2, 1989, visit to China. See *Yomiuri Shimbun* (Tokyo), January 6, 1990.

³⁵ *Washington Post*, March 27, 1990.

intended to justify a strong U.S. military presence in Japan in the face of calls for troop reductions, but the impact of his statement has fallen more heavily on his warning of a rearmed Japan.

If these attitudes emerge more into American policy in the context of deteriorating U.S.-Japan economic relations, Japanese confidence in the U.S. security commitment could drop and the political acceptability of U.S. troops in Japan to the Japanese public and political leadership could come into question. Polls and other indicators show that the Japanese public and Government support the Security Treaty and the stationing of U.S. troops in Japan. The Japanese Government indicates that it is willing to raise Japan's share of the financial costs of the American military presence.

Underneath this, however, nearly 30 percent of the Japanese people view the United States as "unfriendly" to Japan.³⁶ Some officials of the Japan Defense Agency assert that the Security Treaty should be abrogated in the future.³⁷ Some members of the Liberal Democratic Party in the Diet reportedly have joined opposition members in opposing the proposal that Japan pay all the costs of U.S. forces in Japan. Criticism has appeared in the Japanese press of U.S. views that the United States needs to contain Japan in Asia.

All of these sentiments and issues probably would remain limited if the two countries contain economic disputes. On the other hand, they could coalesce quickly and expand rapidly if the worsening economic relationship deteriorated into an all-out trade war. A series of economic-trade sanctions, either unilaterally by the United States or as a cycle of sanctions and retaliation by both governments, would destroy political support for the defense alliance in both countries and make day to day working relations impossible. Retaliatory moves could directly involve steps to end defense cooperation. The alliance no doubt could not survive in such a situation.

MILITARY IMPLICATIONS OF JAPAN'S EXPANDING ROLE IN EAST ASIA

Japan today rejects the idea of security relations with other East Asian countries, citing Article 9 of its constitution. Article 9 denies the right of belligerency and prohibits the maintenance of armed forces. At the same time, Japan is becoming economically dominant in East Asia, and it is interjecting itself in regional political disputes like Korea and Cambodia. Some observers contend that this lays the foundation for a potential regional security role or security ties with other countries. Both in Japan and other regional states, there is much resistance to such ideas. Moreover, a whole set of factors probably would have to come into play before Japan would adopt a regional security policy: a breakup of the U.S.-Japan alliance due to economic conflicts; a substantial U.S. military withdrawal from the Western Pacific; a reaction of East Asian governments to an American withdrawal that would perceive Japan as constructively filling the vacuum; the appearance of distinct regional threats to vital Japanese interests like security of sea lanes

³⁶ *New York Times*/CBS/Tokyo Broadcasting System poll, February 1989.

³⁷ *Asahi Evening News* (Tokyo), February 28, 1990.

and a non-hostile South Korea; a more aggressive Chinese policy towards China's neighbors; and future Japanese Government decisions regarding the ban on arms sales.

Japan's growing economic and political roles will open up possibilities of rivalries with other countries, China in particular. Beijing is suspicious of Japan's expanding power; Chinese officials frequently warn visitors from the United States and East Asian countries of the threats from Japan. Japan and China have long-standing territorial disputes in the East China Sea, which could break out, especially if oil was discovered in those waters. An escalation of China's military aggressiveness in the South China Sea would affect sea lanes important to Japan. The continued flow of Japanese investment into Southeast Asia could stir China's ire in the 1990s, especially if that flow spread into Indochina following a settlement of the Cambodia problem.

UNILATERAL DEFENSE OPTIONS

Japan's next five year defense plan (1991-1995) likely will cover a transition period in the country's defense policy. The military alliance with the United States undoubtedly will continue, though possibly under pressure from trade conflicts and differences over financial burden sharing of U.S. forces in Japan. A rationale for security cooperation with the United States can be expected to prevail in Japan for at least most of the period. Japan will be affected by sustained improvements in East-West relations and will adjust defense policies accordingly, even if less so than the United States and Western Europe.

Japanese defense officials have indicated that the 1991-1995 five year plan will reflect this outlook. They state that the plan will not contain proposals for major new weapons systems or a further buildup in modern weapons systems. The Defense Agency reportedly has rejected Armed Forces requests to include aircraft carriers and several other new systems in the plan. The plan reportedly will emphasize refinements of existing capabilities (such as acquiring refueling air tankers for aircraft and more sophisticated early warning aircraft) and strengthening sustainability in ammunition stockpiles, spare parts, and logistics support.³⁸ Japanese officials have told U.S. officials, including Pentagon officials, that increases in annual defense expenditures during the period covered by the plan will be only 50 percent of the current 5-6 percent annual increases.

There is logic to such an emphasis. The Government still has to complete payments for much of the heavy weapons systems procured in the 1980s. As stated previously, the sustainability and logistics side of the defense buildup has lagged behind the buildup of frontline equipment. Improving East-West relations may motivate the statements forecasting that increases in military expenditures will fall by about 50 percent. Even if U.S.-Soviet relations should worsen, Japan could carry out this kind of plan at the present level of defense spending hikes.

³⁸ Kyodo News Service (Tokyo), February 22, 1990; Cheung, Tai-Ming, *Self-Defence and Beyond*, *Far Eastern Economic Review*, December 21, 1989, p. 26-29; and, *Defense News*, April 23, 1990.

One element in this transition could be the adoption of an overseas role for the Self-Defense Forces through participation in United Nations peace keeping operations. The present Persian Gulf crisis has brought out views within the ruling Liberal Democratic Party in favor of such participation. The Gulf crisis and any future peace settlement of the Cambodian issue (which likely would involve a substantial U.N. role) present real possibilities for such a SDF role. If it happens, it would represent a break with the past policy of no overseas deployments.

In the mid-1990s, Japan will define its defense policy for the period entering the 21st century. The U.S. factor likely would be most influential on Japanese decisions. An effective end of the U.S.-Japan Security Treaty—either *de jure* or *de facto*—and/or a substantial American military disengagement from the Western Pacific in the late 1990s would produce the greatest possibilities of unilateral moves by Japan outside the framework of the current defense policy. Specific unilateral moves would depend on Japanese threat perceptions involving the Soviet Union, China, or possibly the situation on the Korean peninsula.

One possible unilateral position is the development of a conventional counter-attack capability against the Soviet Union. Japan's technological capabilities in the development of missiles no doubt would enable it to produce longer range surface missiles, which the Self-Defense Forces could target against Soviet military installations in eastern Siberia. The FSX fighter or a follow-on aircraft could be modified or developed with longer range strike capability to reach Soviet Sakhalin, the Kurile islands, and the Siberian east coast. Japan also could move swiftly to build up its attack submarine force, including the addition of submarines with missiles capable of reaching targets on land.

Japan could expand programs for the defense of Hokkaido, either alone or in conjunction with the development of counter-attack assets. The Defense Agency and Japanese defense firms could move into the development of new models of multiple rocket launchers, anti-tank weapons, tanks, surface to air missiles, and short range surface to surface missiles. The Defense Agency also could adopt measures to raise the size of the ground self-Defense Forces, most likely through added incentives for enlistment. Another option, conscription, would be controversial politically; the Government probably would consider it only in a situation of rapid deterioration of relations with the Soviet Union and major increases in Soviet military power near Japan.

An expansion of sea lane defense represents a second unilateral option. Certain Japanese defense proposals (not yet officially approved), particularly those calling for the enlargement of naval forces and the construction of aircraft carriers, would give Japan the ability to project naval power beyond the 1,000-mile sea zone. A few Southeast Asian security specialists, who have ties to their respective governments, indicate that a Japanese military role in Southeast Asia might be acceptable, however reluctantly, to the governments of the Association of Southeast Asian Nations (ASEAN) if the Americans withdraw and threats develop from

either China or the Soviet Union.³⁹ The Singapore Government has stated publicly that it has offered the United States increased military access to facilities in Singapore in order to head off a situation in which the ASEAN countries would have to seek security ties with Japan. Singapore's Prime Minister Lee Kuan-yew has predicted that if the United States pulled back militarily from Southeast Asia, "I suppose sooner or later the Japanese would have to fill up a large part of the gap on the naval side."⁴⁰

An expansion of sea lane defense undoubtedly would require Japan to increase the number of ships in the Maritime Self-Defense Forces, further upgrade missile air defense weapons aboard ships, and proceed with the construction of "defensive lightweight" aircraft carriers and/or aircraft carrying cruisers. Japan also might enter into defense support relations with the ASEAN countries. The expansion of sea lane defense into Southeast Asia would provide a strategic rationale, heretofore lacking, for proposals from Japanese business groups that Japan should lift the ban on selling arms to other countries. Southeast Asian states already constitute the most logical purchasers of Japanese weapons should Tokyo ever decide to end the prohibition. An actual or anticipated aggressive Chinese policy in the South or East China seas would add dangers to Japan's security interests in sea lanes and could spur the adoption of this unilateral option.

A related unilateral move to expand sea lane defense would involve cooperation between Japan and South Korea. A parallel concern over sea lane security presently exists between the two countries; this would be magnified in the wake of a U.S. pullback. Such a situation would present a possibility for Japan and South Korea to break through the deep historically based animosities between them and begin limited defense cooperation.

This limited cooperation would not entail a Japanese military role on the Korean peninsula itself. Because of the hostility between Korea and Japan, Japanese military involvement on the peninsula would be a radical move that most likely would create political unrest in South Korea, possibly a military reaction by North Korea, and counter-moves by China and the U.S.S.R., Japan's traditional rivals on the peninsula. In short, a direct Japanese military role on the Korean peninsula would not rank high as a possibility in the 1990s.

Prospects for a Japan exercising unilateral defense options inevitably raises the question of the nuclear option: would Japan decide that its security interests necessitated the development of nuclear weapons and delivery systems? A decision to go nuclear would require attitudes among Japanese radically different from the current overwhelming anti-nuclear views. The Government undoubtedly would have to conclude that Japan faced a long period of hostile relations with the Soviet Union without prospects of outside support.

³⁹ See Alagappa, Muthiah. The Major Powers in Southeast Asia. *International Journal*, Summer 1989, p. 54-597. The author is a member of Malaysia's prestigious Institute for Strategic and International Studies.

⁴⁰ *Wall Street Journal*, November 1, 1989.

An altered nuclear policy is not likely in the 1990s, but the acute tensions with the U.S.S.R. would have a greater chance of producing a change in the first decade of the 21st century. Japan more likely would rely, first, on international opinion and pressures against any Soviet threats of using nuclear weapons; but the prospect of a protracted, hostile relationship with the Soviet Union could change, over an extended period of time, Japan's current opposition to nuclear weapons.

Japan could justify more easily tactical nuclear weapons for use on the battlefield than strategic nuclear weapons. Tactical nuclear weapons would fit the mode of self-defense, since the Self-Defense Forces would plan to employ them against Soviet forces invading Japanese territory. If Japan were to choose the nuclear option, it likely would develop tactical nuclear weapons first before making a decision on strategic weapons.

In conclusion, if Japan and the United States can avoid a debilitating trade war and maintain a base level of defense cooperation, Japan probably will not exercise unilateral defense options in the late 1990s. This prospect would be strengthened further if Japan and the Soviet Union can settle their differences and if Moscow reduces its military profile in the Northwest Pacific.

If circumstances turned more unfavorably and Japan exercised one or more of the *conventional* defense options, it still would not be a military threat to most of its neighbors (many of which have impressive military capabilities) or to U.S. territorial possessions in the Western Pacific (Guam, the Northern Marianas, Palau, the Federated States of Micronesia). A conventional buildup would have to be much more comprehensive and massive in scope, and Japan would have to go nuclear, before the United States would be threatened.

Prospects for the formation of a Japan-led East Asian trading bloc would increase in reaction to a Japan-U.S. trade war and if some East Asian states modified their opposition to a regional Japanese defense role in the wake of a U.S. military withdrawal. Consequently, the Japanese unilateral defense options discussed above could contribute to Tokyo's leadership potential in the region and reinforce its economic influence rather than detract from it.

THE JAPANESE DEFENSE SECTOR IN PERSPECTIVE

By Richard F Kaufman¹

CONTENTS

	Page
Introduction	371
Defense Trends	372
Measuring Growth Rates and Size	372
Policy Changes and the Budget	374
Composition Changes	376
Interactions With the Economy	378
Military Manpower and the Labor Market	378
The Industrial Base	379
Procurement	381
Outlook for the 1990s	383

INTRODUCTION

Japan's defense activities present the United States with a dilemma. Defense spending is such a small proportion of Japan's GNP that it is seen by many Americans as not a fair share of the cost of Japan's defense. Some observers wonder whether a credible defense program can be mounted with such a low level of effort, and if Tokyo intends to continue enjoying the "free ride" provided by the U.S. security commitment to Japan. At the same time, Japanese defense spending has been growing for many years, and Japan is acquiring an impressive array of advanced weapons and leadership in numerous areas of critical technology with military applications. There are fears in some quarters that Japan's military-industrial complex will turn the nation into a military power, upsetting the balance in the Pacific and threatening U.S. security interests.² Japan also faces a dilemma as it ponders whether to continue or scale down its military buildup for the 1990s.

Japan's defense budget, and the military and civilian activities it finances, provides a useful perspective for attempting to resolve the problem of how to view Japan's military establishment. The purpose of this paper is to examine budgetary and policy trends and the interaction of the defense program with the economy. The intent is to show what we know and what we do not know about Japan's defense program, and to provide some insights into the factors contributing to and constraining growth.

¹ General Counsel, Joint Economic Committee.

² Zakheim, Dov S. Japan's Emerging Military-Industrial Machine. *New York Times*, June 27, 1990; Green, Michael, and David Silverberg. Japan Seeks MLRS, Aircraft in Continued Defense Buildup. *Defense News*, May 21, 1990; and, Dudney, Robert S. Japan Steps Up to a Stronger Defense. *Air Force*, November 21, 1989.

DEFENSE TRENDS

Japan's defense program has been growing since 1954 when legislation was enacted establishing the Japan Defense Agency (JDA) and the Self Defense Force (SDF). In 1955, the defense share of GNP was 1.78 percent. The defense share of total output declined for the rest of the 1950s and the 1960s because the economy grew faster than defense spending. Since 1970, defense has grown slightly faster than the economy, in most years, and is presently about one percent of GNP.

By 1970, the economy had grown so large that the small share spent for defense represented a substantial sum. Japan's enormous economy explains how it can have a sizeable military program while devoting such a small share of GNP to it.

MEASURING GROWTH RATES AND SIZE

Japan's official defense statistics are excellent in many respects, but there are gaps that make it impossible to be precise about the rate of growth or the size of the defense program. One is that the government's annual defense reports, *Defense of Japan*, known as the White Papers, show budget figures in current terms, unadjusted for inflation. These nominal figures distort the real growth rates. For example, in the 1970s, defense budget nominal increases averaged 15.8 percent annually. Inflation was also high during the period, in large part because of the Middle East oil embargo and oil price increases. Using the GNP deflator to adjust for inflation, annual real defense budget increases were about one-half the rate indicated in the annual reports.

The GNP deflator is probably a reasonable one to use to adjust the nominal figures, but this deflator would be inaccurate if inflation was higher or lower in the defense sector than in the overall economy. Concerns expressed in Japan about the rising costs of weapons suggests that inflation may be higher in the defense sector than elsewhere.

The official figures also give a wrong impression about the size of the defense program. Part of Japan's industrial strategy has been to achieve as much autonomy as possible in defense production. To achieve this objective Japan manufactures most of its own weapons despite the fact that it would be less expensive to buy them from foreign countries such as the United States. Protection against foreign competition provides indirect subsidies to the defense industry. The higher, subsidized weapons costs divert resources from more productive uses and complicate assessments of the cost effectiveness of Japan's military hardware.

Another problem concerns the difference between the budget figures and actual expenditures. The tables on defense expenditures contained in the White Papers are described as "Original Budget." They are, in fact, the budget figures as submitted to and approved by the Diet.

But there are normally lags in national accounting between budgets and expenditures. Depending on whether budgets are growing or shrinking, the budgeted amounts may be less than or exceed what is actually spent in a given year. Budgets typically lag behind expenditures in a period of expansion. This is especially

true for defense activities such as procurement where, in the United States, only about 25 percent of the annual approved budget is spent in the first year. Presumably, various spend out ratios exist for different categories of activities covered by Japan's defense budget, making it difficult to understand the relationship between budgets and spending.

In most of the White Papers there has been very little, if any, discussion of defense spending, although tables of statistics are always included. An exception was the White Paper for 1982 where a breakdown of "defense expenditures" was briefly discussed. There it was stated that because of the long periods of time required to manufacture major weapons such as fighters (4-5 years), destroyers (4-5 years), and tanks (2-3 years), they cannot be procured under the single-year budget. Instead, such items are purchased through contracts for periods up to five years. Down payments are made in the current defense budget, the remainder paid through future budgets and carried as "obligational outlay." During 1976-82, obligational outlay grew from 19.3 percent of the defense budget to 27.1 percent.³ This is what one would expect in a period of budget growth, and is similar to the "bow wave" caused by the U.S. military buildup of the 1980s. The term "bow wave" refers to the expanding commitment to spend future budget resources for newly authorized weapons yet to be manufactured.

One writer describes the practice in Japan as a system of deferrals in which the Defense Agency makes down payments to contractors for "big ticket" acquisitions. In some cases the Defense Agency pays interest on loans undertaken by contractors to finance contract performance. The unpaid portion of the deferred payments becomes part of an accumulated debt, only a part of which is funded in each year's budget. The 1984 debt for equipment purchases reportedly totaled \$6.5 billion, about 30 percent of the budget, an amount that had been increasing because of the emphasis in the budget on front line weapon systems.⁴

A large and growing "bow wave" will have several effects, the most important of which may be that as it expands it absorbs more of future budgets leaving less available for other items such as ammunition stocks and manpower. Growth of obligations may also act as a budget constraint on decision makers concerned with the financial consequences. Indeed, at the outset of the 1990s, deficiencies in ammunition stocks and in manpower stood out as key areas that needed to be addressed in a new budget plan.

There is also much uncertainty about estimates of Japan's defense program in dollars. These estimates are usually made by determining the dollar value of Japan's defense budget in accordance with foreign exchange rates. But the dollar value of Japan's defense budget can go sharply up or down just because of fluctuations in dollar-yen exchange rates, rather than because of changes in Japan's defense program. For example, in 1980 Japan's defense budget was Y2.2 trillion. The then official exchange rate was \$1=Y249. Using that ratio, Japan's budget in dollars was about \$9

³ *Defense of Japan*, 1982, p. 185-191.

⁴ Holland, Harrison M. *Managing Defense: Japan's Dilemma* Lanham, University Press of America, 1988. p. 34, 36.

billion. In 1981, the dollar declined to \$1=209 yen and Japan's defense budget was estimated as \$11.5 billion, a 28 percent increase in dollars over the year before, although the budget had increased by only 4.3 percent in real yen. In the mid 1980s, when the dollar plummeted against the yen, the distortion was greater. In 1985-1986, Japan's defense budget increased in dollar terms from \$14.2 billion to \$20.1 billion mostly because of the change in exchange rates.⁵

The distortion works in the opposite direction when the dollar goes up. In 1989, the defense budget was estimated at about \$30 billion based on an exchange rate of \$1=130 yen. But the dollar has recently risen and if it were to stay at \$1=Y150 in 1990, the dollar value of Japan's defense budget would be about \$28 billion, below the level of the year before even though defense spending increased in 1990.

The exchange rate distortion in estimates of the size of Japan's defense effort can perhaps best be seen in a comparison of the growth of the budget in yen and in dollars over the past decade. From 1980 through 1989, the real yen value of the defense budget increased by about 50 percent. For the same period, the dollar value of the budget increased by nearly 300 percent.

Comparisons of Japan's defense spending with other nations tend to vary as a consequence of exchange range movements from one year to the next. In recent years, Japan's defense program has been ranked anywhere from the third largest, after the Soviet Union and the United States, to the sixth largest. It would be more accurate to say that Japan's defense budget is about as large as those of the major European NATO countries.

Comparisons of military force levels would produce a different result. Japan's active duty forces and reserves are much smaller than those of the major West European countries (France, Germany, Italy, and the United Kingdom), and it has fewer tanks and other ground equipment. In other areas, the results are mixed. Japan has fewer submarines than most of the other countries and no aircraft carriers. It has substantial numbers of surface naval vessels and large numbers of fighter aircraft and missiles. It has no nuclear weapons.

POLICY CHANGES AND THE BUDGET

Japan's post-war constitution renounced war and the threat or use of force to settle international disputes, and banned land, sea, and air forces. This was interpreted to permit self-defense and the military forces required for self-defense. The U.S.-Japan Security Treaty committed the United States to defend Japan and granted it the use of military bases for that purpose. The first major express statement of Japanese defense policy, adopted in 1957, called for the gradual development of defense capabilities to prevent aggression, within the limits necessary for self-defense and with the understanding that there would be continued reliance on the United States. In 1967, nuclear weapons were banned. These poli-

⁵ For dollar values of Japan's defense program and dollar-yen exchange rates, see the entries on "Japan" in The Institute for Strategic Studies. *The Military Balance* London, various years.

cies formed the basis of four multi-year defense buildup plans which lasted until 1976.

In the early 1970s, Yasuhiro Nakasone, who was then head of the Defense Agency, tried to change the policy when the fourth defense plan was being discussed. He wanted to drop the requirement that the buildup be gradual and to expand Japan's military responsibilities. The underlying aim was to shift from territorial defense to a more outward strategy. Under Nakasone's plan, which was ultimately rejected, there would have been dramatic increases in fighter and ground support aircraft, antisubmarine capabilities, tanks, and naval vessels including two helicopter carriers. The growth rate of the defense budget would have been significantly increased and its composition changed to allow for increased procurement.⁶

In 1976, the government of Prime Minister Takeo Miki adopted a new statement of defense policy, known as the National Defense Program Outline (NDPO). The NDPO was a reaction to public pressures for defense cutbacks and a consensus within the government that in an era of U.S.-Soviet detente too much was being spent. The NDPO lowered the definition of the external threat, and emphasized modernization rather than enlargement of the force structure. The bans against nuclear weapons, offensive weapons, conscription, and arms exports were reaffirmed, and a cap on defense expenditures of one percent of GNP was proclaimed.

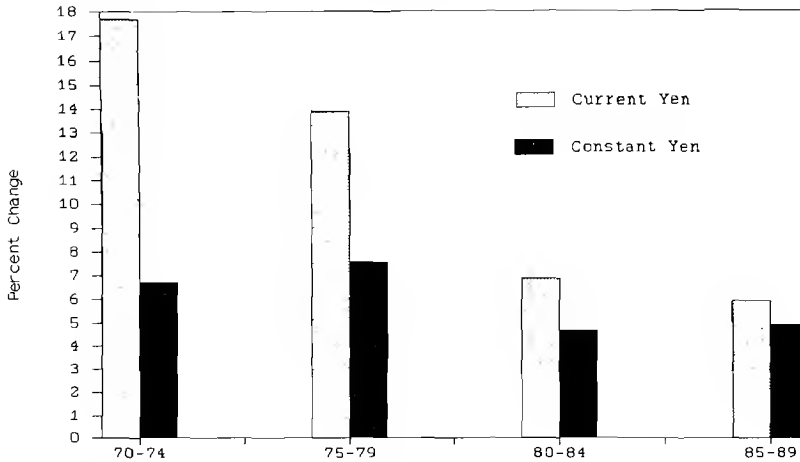
In 1985 the government, led by Prime Minister Nakasone, adopted a new five-year plan for defense (covering 1986-90), referred to as the Mid-Term Defense Plan, calling for a build up of air defense and naval capabilities. The plan was partly a response to U.S. calls for increased Japanese defense spending during the Carter and Reagan Administrations and also provided for strengthened capabilities to carry out Japan's commitment (made in 1981 under Prime Minister Suzuki) to provide naval protection around Japan and for the commercial sea lanes to a distance of 1,000 miles from Japan.

The 1986-90 plan had a price tag for the five years of Y18.4 trillion, at 1985 prices, according to the White Papers. The cumulative annual defense budgets for the five-year period, stated in current yen, total almost exactly Y18.4 trillion. The plan represented something of a turnaround from the defense strategy contained in the 1976 statement of military policy, the NDPO. Technically, the NDPO remains in effect but the later plan shifted policy toward the more robust approach that Nakasone had urged when he headed the Defense Agency. Despite the more insular approach reflected in the NDPO, real defense budget growth was slightly higher in the earlier period than in the years covered by the current plan. Figure 1 shows that there has been a slowdown in the real growth rate of Japan's defense budget since 1970.

The real rate of defense growth was only marginally higher in the second half of the 1980s than in the first half, and there was slower real growth in the 1980s than in the 1970s. The slight increase in the second half of the 1980s may have had more to do

⁶ Levin, Norman D. *Japan's Changing Defense Posture*. Santa Monica, Rand Corporation, 1988. p. 4-7. (A Rand Corporation note, prepared for the Office of the Secretary of Defense).

FIGURE 1. Japan Defense Budget
Current and Real Rates of Change
(5 year averages)



Source: *Defense of Japan*, various years. Nikkei Telecom, *Japan News and Retrieval Database* (GNP Deflator).

with the slowdown in inflation during that period than with defense policy.⁷

COMPOSITION CHANGES

While there was a slowdown of defense spending in the 1980s, the change in policy expanded the roles and missions for Japanese forces and the emphasis on new hardware has improved military capabilities in some areas. Previously, Japan's defense forces were intended to defend against "limited and small-scale aggression,"⁸ a role which was vague and seemed hardly commensurate with the nature of the perceived threat from the Soviet Union. Under the new arrangement, Japan is responsible for defending its territory. The surrounding sea and air space, and the sea lanes out to 1,000 miles. The more modern arsenal, combined with a significant expansion of defense production capabilities, has caused apprehensions among Japan's Asian neighbors about her increasing military power.⁹

⁷ The Organisation for Economic Co-Operation and Development (OECD) has published data on Japanese defense expenditures in current and constant yen showing similar trends. *National Accounts, 1975-1987*. Paris, OECD, 1988. p. 64.

⁸ *Defense of Japan*, 1980, p. 46.

⁹ Richburg, Keith B. Many Asians Fear Potential Military Threat From Japan. *Washington Post*, August 4, 1990; Yu Yiguo. Japan Constantly Increases Its Military Strength. *Hong Kong Liawang Overseas Edition*, May 28, 1990; FBIS *China Daily Report*, May 31, 1990, p. 6-7; Japan's Defense And Its Neighbors [Editorial], *Mainichi Daily News*, July 15, 1988; and, Neilan, Edward. Japan's Defense Plan Rattles Its Neighbors. *Washington Times*, June 6, 1988.

Earlier buildups were not fully funded.¹⁰ The 1986–1990 plan has proceeded on schedule, moving the U.S. Defense Department to express qualified approval for Japan's steady progress towards the military capability to fulfill its agreed mission. But the Pentagon is critical of Japan's "below par" financial contribution to defense and of its low standing among NATO countries with regard to selected indicators such as active duty manpower, reserves, ground combat capability, air force combat aircraft, naval tonnage, and munitions sustainability.¹¹ In a comparison with fifteen major countries and regional military powers, the Japan Defense Agency ranked itself last in number of persons in the ground forces, sixth in naval tonnage, and last in number of combat aircraft.¹²

Nevertheless, the emphasis on weapons and equipment has shifted the composition of the defense budget. This trend is not a new one. A shift in budget resources away from personnel and towards hardware has been underway for many years. The 1986–1990 plan continued the trend. Table 1 shows the changes since 1976.

Table 1. JAPAN DEFENSE BUDGET, CHANGES IN COMPOSITION, SELECTED YEARS

	(Percent)					
	1976	1979	1982	1985	1987	1989
Personnel	56.0	51.4	46.6	45.1	43.9	41.2
Supplies	44.0	48.6	53.4	45.1	56.1	58.8
Equipment	16.4	18.7	22.4	26.2	27.5	28.0
R&D	0.9	1.0	1.1	1.6	1.9	2.1
Facilities	2.3	2.9	2.3	1.4	2.0	2.1
Maintenance	14.5	13.9	15.8	15.1	14.2	15.1
Bases	8.2	10.2	10.4	9.5	9.4	9.5
Others	1.7	1.8	1.4	1.2	1.1	1.2
Total	100.0	100.0	100.0	100.0	100.0	100.0

Source: *Defense of Japan*, various years.

The figures show a steady decline in funds for personnel ("Personnel provisions" in the White Papers") and a comparable increase for supplies. Personnel, composed mostly of military pay and food, declined from 56 percent of the budget in 1976 to 45.1 percent in 1989. Supplies, including equipment acquisition and R&D, increased from 44 percent of the budget in 1976 to 58.8 percent in 1989.

Equipment ("Equipment acquisition"), comparable to weapons procurement in the U.S. defense budget, together with R&D, made the most dramatic gains. Equipment acquisitions increased by 71 percent over the period. R&D more than doubled although, at 2.1 percent it is still a small share of the budget.

Facilities ("Facility improvement") includes military construction and has been level except for a dip in the mid 1980s. Maintenance, which includes housing, clothing, and training, was also

¹⁰ The U.S. General Accounting Office attributes the under funding of various five-year defense programs to a desire to maintain defense budgets below 1 percent of GNP. U.S. General Accounting Office. *U.S.-Japan Burden Sharing: Report to the Congress by the Comptroller General of the United States*. Washington, 1989, p. 15.

¹¹ U.S. Department of Defense. *Report on Allied Contributions to the Common Defense*. Washington, April 1990, p. 1-10, 2-5, 2-9, 3-12.

¹² *Defense of Japan*, 1989, p. 251.

level. Bases (called "Base countermeasures") contains the costs of compensating communities for undesirable environmental effects. It has declined moderately since the early 1980s.

Japan's contributions to the costs of maintaining U.S. forces in Japan, known as host-nation support, is not broken out in the budget but is believed to be distributed over two or more of the above categories, possibly in facility improvement and base countermeasures. It has increased over the past several years and now comprises 6-7 percent of the defense budget.

INTERACTIONS WITH THE ECONOMY

Japan's leadership has been well aware of the role of the defense sector in the economy, the contributions each makes to the other, and the danger that high defense spending can impede economic growth. Concerns about the effects on the economy can be seen in such statements in the White Papers that in the implementation of buildup plans care will be taken to ensure harmony with other policies of the government "by taking into account the prevailing economic and fiscal conditions," and that the defense buildup must be enforced "in consideration of the country's economic and fiscal situations."¹³

Throughout the 1980s, Japanese assessments of a rising Soviet military threat and a relative decline in American power and influence formed a backdrop for announcements of defense buildup plans. But economic factors and policy decisions driven in part by economics, such as the one percent (more or less) cap on the defense share of GNP, appear to have at least contributed to the constraints on the growth of the defense sector. At the same time, there are groups whose economic interests would be served by an expansion of the defense program, and some would argue that arms production plays an important part in the development of commercial technology and manufacturing.

MILITARY MANPOWER AND THE LABOR MARKET

The Self Defense Forces have generally failed to achieve authorized manpower levels, a fact all the more remarkable in light of the relatively small authorized number. Military manpower has barely increased in the past decade, from a total active force of 243,000 in 1981 to 247,000 in 1989, and is presently at about 90 percent of authorized strength. Most of the active duty persons are in the Ground Forces, Japan's army. There, the actual number is about 87 percent of authorized strength. For many years, the army has been authorized to have 180,000 troops. In 1989, it had 156,216 on active duty.

Several factors underlie the difficulties in maintaining authorized strength and the serious morale problems that exist in the Defense Forces. The military does not occupy a high status in Japanese society and is shunned by many because of unpleasant wartime memories. Although this situation may be changing, anti-mili-

¹³ *Defense of Japan*, 1980, p. 97; *Defense of Japan*, 1982, p. 185.

tary sentiment is strong and will persist for the foreseeable future.¹⁴

Of greater importance is the low priority given to military manpower by the government. The shift in the budget from personnel to weapons and equipment points to the prolonged neglect of what the Defense Agency refers to as the "human factor." Military pay, benefits, and living conditions have obviously not attracted the required number of qualified recruits.

The Defense Agency has acknowledged the existence of the recruitment problem. The 1982 White Paper identified several causes of "the permanent shortage of young recruits." They were: the decline of the eligible-age population (18 years-25 years), the rising desire of young people to seek higher education, "social tendencies" such as the nuclearization of families, and the military short-term appointment system in a country where lifelong employment is traditional. The report said that steps were being taken to make military service more attractive to young men.¹⁵

The 1988 White paper provided additional insights into the problem by confirming accounts of the deplorable living conditions and poor treatment of military personnel. It described the barracks and other living quarters as insufficient in quantity and inadequate in quality, and spoke of the need to improve pay, promotion policies, health care, and retirement.¹⁶ Recent press reports indicate the problem has not improved. Young men are still reluctant to join the military because of low pay and bad working conditions.

So long as the economy continues to expand, demographic trends are likely to make it difficult for the Defense Agency to meet its manpower requirements. The long term decline in birthrates has reduced the size of the 18-25 year old cohort and will reduce it further in the 1990s. The Ministry of Labor recently forecast that the labor supply will grow at only a 0.7 percent annual rate until 1995 and will grow more slowly after 2000.¹⁷ Whatever steps might be taken to alleviate Japan's chronic labor shortage, such as encouraging more women and the elderly to work, the number of 18-25 year-olds will decline for many years. The implications for military recruitment are not favorable.

THE INDUSTRIAL BASE

Japan's defense industry differs greatly from that of the United States. One of the principal differences is that it is proportionately smaller, a fact that should not be surprising in a country where total defense comprises only one percent of GNP and arms production is about 0.6 percent of total industrial output. The Defense Agency reported in 1983 that more than 2,000 contractors were registered with the Central Procurement Agency, and that the number actually awarded contracts was in excess of 800. A more recent private estimate is that over 1,500 firms are involved in the

¹⁴ For a brief discussion of this issue, see Chapman, J.W.M., R. Drifte, and I.T.M. Gow. *Japan's Quest For Comprehensive Security*. New York, St. Martin's Press, 1982. p. 31-32.

¹⁵ *Defense of Japan*, 1982, p. 219-220.

¹⁶ *Defense of Japan*, 1988, p. 131-132.

¹⁷ Japan Economic Institute. *JEI Report*, no. 26B, July 6, 1990. p. 8-9.

manufacture of arms, about 2,000 if subcontractors are included.¹⁸ In the United States, an estimated 10,000 firms do prime contract work for the Defense Department and another 20,000 are involved in subcontracting. An estimated 70,000 Japanese workers, 0.1 percent of the total labor force, are involved in defense production. In the United States, about 2.5 percent of the work force is in defense production.

The concentration of defense production among the largest firms in Japan is very high. In 1989, the Defense Agency awarded equipment contracts totaling about \$10 billion. The top 10 Japanese defense contractors accounted for 63 percent of the total. The top four firms accounted for 48 percent, and Mitsubishi Heavy Industries (MHI) led the list for the 25th year in a row with the equivalent of \$2.4 billion or 24 percent of total defense awards. However, the shares and values of contracts for individual companies declines rapidly after the handful at the top.¹⁹

In the United States, the 10 largest contractors received 34.5 percent of the awards; the largest 100 contractors received 66.4 percent of the total. The top contractor, McDonnell Douglas, obtained \$8.6 billion, 6.7 percent of the total.²⁰

On average, the larger Japanese defense firms are less dependent on defense contracts and they tend to be more diversified than their U.S. counterparts. For the larger Japanese firms, defense is about 5-20 percent of total sales. One study describes defense work as a small, sideline activity for most Japanese firms, dwarfed by civilian production.²¹ For many of the top U.S. defense companies, defense comprises 30-50 percent or more of sales and for some the share is higher. On the other hand, defense became a more important business activity in Japan during the 1980s with the increase in the production of advanced and expensive weapons. The Mitsubishi Heavy Industries defense share in corporate revenues expanded during this period, from 8-10 percent to 21.3 percent.²²

Japanese firms follow an integrated approach to their defense and civilian activities. Many of the same people and manufacturing facilities are employed in both types of business. This has facilitated both military and civilian applications of dual-use technologies. As a result, Japan has succeeded in substituting many domestic components in military systems supplied by the United States and in penetrating the U.S. military market with such components.²³

Some experts believe it is recognized in Japan that the domestic market is not large enough to support national production in important areas, and for aircraft and space products it is not the commercial market but the military which is the core activity. There-

¹⁸ Drifte, Reinhard. *Arms Production in Japan*. Boulder, Colorado, Westview Press, 1986. p. 29, footnote 18; Japan (Market Overview). *Forecast International/DMS Market Intelligence Report*, April 1990. p. 3.

¹⁹ Japan Economic Institute. *JEI Report*, no. 16B, April 20, 1990. p. 13-14.

²⁰ U.S. Department of Defense. *100 Companies Receiving the Largest Volume of Prime Contract Awards, Fiscal Year 1989*. Washington, 1990.

²¹ Kataoka, Tetsuya, and and Ramon H. Myers. *Defending an Economic Superpower*. Boulder, Westview Press, 1989. p. 65.

²² Japan Economic Institute. *JEI Report*, no. 30A, August 3, 1990. p. 4.

²³ U.S. Congress. Office of Technology Assessment. *Arming Our Allies: Cooperation and Competition in Defense Technology*. Washington, U.S. Govt. Print. Off, 1990. p. 64-70. See Steven K. Vogel's paper on Japan's Defense Industry in this volume for a discussion of strengths and weaknesses.

fore, policy makers used increased defense production in the 1980s as a strategy for furthering industrial development in the aerospace sector.²⁴ Much of the criticism of the agreement under which General Dynamics and the Japan Defense Agency will co-develop the FSX, Japan's next generation fighter aircraft, is based on fears that Japan will use U.S. military technology to catch up with the U.S. aircraft industry.

Another explanation of the trends is that large firms have used their influence to channel defense funds into weapons and equipment acquisition regardless of the effects on aerospace competitiveness. A report by the Japan Economic Institute points out that Japanese industry has failed to become competitive in the commercial aircraft industry, and argues that Japanese producers have never relied on military technology to improve their capabilities in the civilian area.²⁵

Whatever commercial industry may have gained from defense spending, Japan's defense program has paid a heavy price for the Japanese approach to defense production. As a rule, defense production is a high cost, inefficient activity. Japan's defense industry is no exception. It was mentioned earlier that the strategy of defense production autonomy involves protection against foreign competition and indirect subsidies to the defense industry. Short production runs in a limited market mean high unit costs. When licenses are required to produce weapons developed elsewhere, there are additional costs. For example, licensed production of the F-15J fighter, produced by MHI, is 1.5 times more expensive than it would be to buy it directly from the U.S. manufacturer, and it will cost Japan twice as much for the FSX as it would to buy F-16s from the U.S. manufacturer.²⁶ The integrated industrial approach also adds costs to defense. At facilities where defense and commercial activities are integrated, a portion of commercial production and overhead costs are financed by the defense budget.²⁷

PROCUREMENT

There is an elaborate system in Japan for reviewing the procurement part of the defense budget.²⁸ Annual procurement requests are developed initially by staff in each of the three military services and then submitted to the Defense Agency where they are examined by several bureaus whose directors are generally on loan from the Ministry of International Trade and Industry (MITI), the Ministry of Finance, and the Ministry of Foreign Affairs. The Defense bureaus develop the procurement plan which is submitted to MITI and the Ministry of Finance.

²⁴ Samuels, Richard J., and Benjamin C. Whipple. *Defense Production and Industrial Development: The Case of Japanese Aircraft*. Cambridge, Massachusetts, The MIT Japan Program, MITJSTP 88-09.

²⁵ Japan Economic Institute. *Japan's Commercial Aircraft Industry: Trying To Pull Out Of A Stall*. JEI Report, no. 34A, September 1, 1989.

²⁶ *Forecast International/DMS Market Intelligence Report*, p. 3, 10; Grimmett, Richard F., and Larry A. Niksch. *FSX Fighter Agreement With Japan*. Issue Brief No. IB89060 (continually updated). Washington, Congressional Research Service, June 7, 1990. p. 7.

²⁷ OTA, *Arming Our Allies*, p. 64.

²⁸ The description of the preparation of the procurement budget is based on Kataoka and Myers, *Defending an Economic Superpower*, p. 65-67.

Following reviews by MITI and the Finance Ministry, the plan, which may be modified, is forwarded for final approval to the National Security Council, composed of the Prime Minister, Deputy Prime Minister, the Finance and Foreign Ministers, the Defense Agency Director, and the Economic Planning Agency Director. While the Council's review is underway, Council members consult with majority party leaders in the Diet to obtain their approval.

Not much is known by outsiders about the procurement process itself, that is, how defense contracts are awarded and administered. Steps taken while the procurement request is being developed obviously influence some of the decisions about contract awards. For example, while the request is still being worked on in the Defense Agency, discussions are held by defense officials with the Keidanren, a large and prestigious business association, and industry leaders, in which the government provides information about new weapons and equipment it may wish to purchase. According to Kataoka and Myers, before the Diet has approved the procurement request, "there is general understanding within MITI and Defense as to which firms will be considered for bids and final award of contracts."²⁹

The close involvement of MITI and industry in the development of the procurement request, and the top-heavy structure of the defense industry, raise questions as to whether a substantial portion of contract awards are simply directed to the larger firms. It seems clear that some firms obtain information about future weapons requirements before the procurement request is approved by the Diet. Where bidding for contracts does occur, it is likely that potential bidders are preselected. Some observers believe that the Defense Agency designates at least two firms for most military hardware bids.

The Patriot missile case illustrates the close involvement of major defense firms in procurement decisions. At the time Patriot was being considered as the next generation of air defense missiles, Mitsubishi Heavy Industries was the prime contractor for the Nike-J missile and Mitsubishi Electric Corp. (MELCO) was the prime contractor for the Hawk missile. Patriot was to replace both. MITI, whose aircraft and ordnance division exercises great influence in weapons procurement, intervened at the Defense Agency on behalf of MHI. After MHI performed a technical study, evaluating Patriot and a rival missile proposal, at the request of the Defense Agency, MHI was named the prime contractor for Patriot. MELCO, the second largest defense firm, became a major subcontractor.³⁰

High defense contractor officials serve on advisory panels for the Defense Agency and the powerful ministries, and the practice of defense officials leaving government to work for defense firms, known as the "revolving door" in the United States, is more pronounced in Japan. It is evident that defense firms and defense industry associations play a direct and indirect role in procurement and that the government's approach is to channel access to the

²⁹ Ibid., p. 67.

³⁰ Chinworth, Michael W. *Industry and Government in Japanese Defense Procurement: The Case of the Patriot Missile System*. Cambridge, Mass., The MIT Japan Program, MITJP 89-04.

process and contract awards to a select list of the larger companies. One U.S. expert concludes that the Japanese defense market is an oligopoly in which only a few firms are allowed to develop specific manufacturing and production capabilities.³¹

There is apparently no legal requirement for open competition. Whether there is any significant competition, or at best only rivalry between two or three firms, and how many contracts are awarded on a sole source basis, cannot be known without additional information from the government. There are many other unanswered questions about contracting concerning such matters as the types of contracts used, the methods for estimating costs, the negotiation of prices and profits, and the details about deferred payments including the inducements given to contractors.

There are even larger gaps in knowledge about the administration of contracts once they are awarded. There are few, if any, facts about government efforts to assure compliance with contractual technical performance requirements, cost estimates, and delivery schedules. It is not known how the government responds in cases where performance requirements or delivery dates cannot be met, or where costs exceed original estimates. There is little information about government auditing and inspection, quality control, or testing of new weapons.

The control of costs must be of vital importance in a system where budgets are fixed for multi-year periods. It will be recalled that 18.4 trillion yen was budgeted for 1986-1990, and that amount was not changed. In a fixed budget, cost growth and overruns for weapons can be accommodated only by reducing purchases, shifting funds from other accounts, or increasing future obligations. Although stretchouts are known to have occurred, it is unclear what the general policy is when weapons costs increase unexpectedly and how the policy is applied.

OUTLOOK FOR THE 1990s

Pressures to maintain strong growth in defense seem to be easing, and pressures to slow the growth rate seem to be increasing at the outset of the 1990s. This is a consequence of external and internal developments: the improvement in East-West relations and the decline of the Soviet military threat (although perceived to be not as much in Asia as in Europe), sensitivity to concerns about rising Japanese military power among the other Asian nations and to anti-militarist feelings within Japan, and the desire to shift resources away from defense for budgetary and economic reasons. Defense officials argue that global and regional uncertainties, and the need to fully implement Japan's commitment to the United States to expand its military responsibilities, require a continued buildup.

The economic considerations may carry the most weight. Some would maintain that economics has prevailed all along and is integral to Japan's concept of "Comprehensive Security." A 1980 report with that title, prepared by a distinguished panel at the request of Prime Minister Ohira, spoke of "the maintenance of economic

³¹ Chinworth, Michael W. *Strategic Technology Management in Japan: Commercial-Military Comparisons*. Cambridge, Mass., The MIT Japan Program, MITJP 89-07.

strength, i.e., maintaining productivity and competitive export power" as necessary to achieve economic security, and of the relationship between security policy, in a narrow sense, and economic security policy.³² The idea that defense decisions are to be made in the context of economic and fiscal considerations is a guiding principle that helps explain the structure of defense decision making. The Defense Agency is not a cabinet level agency and must achieve a consensus for its budgetary requests among more powerful ministries such as Finance.

Japan is enjoying an economic boom, but worries about inflation, interest rates, and budget deficits, cause many Japanese to question the policy of rapid defense growth. The minority Komeito party advocated a freeze on defense spending in early 1990, as the government began discussions of a new defense plan. A major newspaper has editorialized that the Defense Forces could be cut in the wake of the announced cuts of U.S. manpower forces in Japan, and that defense requirements should be reviewed in light of the collapse of the Warsaw Pact. The Defense Agency has argued vigorously against a slowdown and on one occasion the Defense Agency Director publicly contradicted a suggestion by Prime Minister Kaifu that defense could be scaled back because of the changing international situation. But Kaifu later reiterated his position.³³

Because the consequences of decisions about defense spending for the next few years will have far reaching consequences, Japan is at an important turning point. To carry out the new roles and missions would require the acquisition of some or all of a series of advanced weapon systems: Aegis equipped destroyers, AWACS (Airborne Warning and Control System) aircraft, MLRS (Multiple Launch Rocket Systems), OTH (Over the Horizon) radars, and tanker refueling aircraft. All are expensive, and it is hard to see how they could be purchased if defense growth is reduced given the increased prices of fuel and imported weapons, the bow-wave effects of prior weapons obligations, U.S. requests for greater host nation support, and the need for improvements in areas other than hardware such as logistical support and military pay and amenities.

The problem is that unless the Defense Forces can conduct surveillance and project power over long distances, they will not be able to monitor the areas around Japan or the sea lanes out to 1,000 miles. Military analysts argue that to perform such tasks the Defense Forces must have AWACS and mid-air refueling capabilities, among other things. Aegis is needed to defend the fleet against air attack but Navy officials acknowledge that of the eight planned only four will be built, in part because of budgetary limitations. Light aircraft carriers would help provide for outer fleet defense. The Japanese press

³² *Report on Comprehensive National Security*. Tokyo, The Comprehensive National Security Study Group, 1980. (Chairman of the group was Masamichi Inoki) Also, Barnett, Robert W. *Beyond War, Japan's Concept of Comprehensive National Security*. Washington, Pergamon-Brassey's, 1984.

³³ Editorials. *Asahi Evening News*, April 13, 1990, June 20, 1990, June 22, 1990; Kaifu Suggests Cutting Defense Program Outline. *The Daily Yomiuri*, April 10, 1990; Japan Economic Institute, *JEI Report*, no.30B, August 3, 1990. p. 5-6.

has reported an industry plan to build carriers, but the Navy denies having anything to do with it.³⁴ Significantly slower defense growth would almost certainly mean postponements or cancellations of these big ticket items.

³⁴ Green, Michael. Despite Aegis, Japan Still Will Depend on U.S. Navy. *Defense News*, August 13, 1990.

JAPAN'S DEFENSE INDUSTRY

By Steven K. Vogel ¹

CONTENTS

	Page
Summary	386
The State of the Industry	387
Prospects for the Future	389
Military Research and Development	392
The Challenge for the United States	394

SUMMARY

The Japanese defense industry has some remarkable strengths, and some rather persistent weaknesses. The industry's major technological strength lies in its extraordinary commercial technology base, while its primary weakness lies in the realm of overall system integration. The greatest limitations on the Japanese defense industry, however, are not technological, but political. Japanese defense producers operate within a limited domestic market, and they are prohibited from exporting weapon systems. Nevertheless, the prospects for the industry's continued growth in the next ten years are quite good.

The Japan Defense Agency (JDA) has done its best, with a modest R&D budget, to stay not-too-far behind the United States and other Western nations in military technology. In recent years, the JDA's research wing, the Technical Research and Development Institute (TRDI), has been particularly successful in developing the ASM-1 series of anti-shipping missiles. The TRDI and the defense industry now hope to try out some of their best dual-use technology and to improve their skills in system integration by co-developing the fighter support experimental, or "FSX," with General Dynamics.

The growing strength of the Japanese defense industry poses a challenge for the United States because Japanese producers are likely to increase their share of their internal market at the expense of U.S. exporters, and because they may eventually compete with U.S. producers in the United States or in third markets. U.S.-Japan co-development offers the United States a partial solution to this problem: it secures access to the Japanese market and access to Japanese technology. As the level of Japan's military technology

¹ The author is a research fellow at the Berkeley Roundtable on the International Economy (BRIE), University of California, Berkeley. This paper is based on the author's *Japanese High Technology, Politics, and Power*. BRIE Research Paper No. 2, March 1989.

advances, the United States stands to gain more, and to risk less, in working together with the Japanese.

THE STATE OF THE INDUSTRY

American critics of the "FSX" agreement, under which the United States and Japan agreed to jointly develop Japan's next fighter aircraft, both underestimated and overestimated the strength of Japan's defense industrial base. Many of these critics underestimated the Japanese when they assumed that Japan did not have much to offer in the way of military technology that could flow back to the United States. Many also overestimated the Japanese in fearing that Japan could use General Dynamics' technology from the F-16C to build an aircraft industry which would rival the U.S. industry in the near future.

In order to assess the present state of Japan's defense industry, one must understand both the industry's strengths and its weaknesses. In terms of technology, the industry's strength lies in Japan's extraordinary commercial technology base. Japan now leads the United States in a number of high-technology areas, including semiconductors, optoelectronics, and robotics. Japanese companies' share of the global market for semiconductors surpassed that of U.S. companies in 1986.² The Semiconductor Industry Association estimates that Japanese producers surpassed their American counterparts in global market share for semiconductor equipment in 1990 and will surpass them in global market share for computers in 1992.³ The Department of Defense's 1990 Critical Technologies Plan judges that Japan leads the United States in important niches of 5 of 20 basic technology areas which are "critical to the long-term superiority of U.S. weapon systems": semiconductors, machine intelligence and robotics, photonics, superconductivity, and biotechnology. The Soviet Union leads in only one area: pulsed power.⁴ The United States' primary rival for supremacy in the high-technology race is no longer the Soviet Union, or Western Europe, but Japan. Although the United States and Japan share rough "parity" in this high-technology race, Japan has important advantages in manufacturing technology and product reliability.

Japan's leadership in commercial high technology has important implications for military production because commercial technology has advanced more rapidly than military technology in recent years. In the past, the requirements of the military market were usually much stricter than those of the commercial market. Products for military procurement must be resistant to shock, heat, and radiation in a way that few commercial products need to be. In recent years, however, commercial technological advances have outpaced those in the military sector to the point where commercial technology is now at the forefront in many areas. It is difficult to compare the overall level of technology in the commercial and military sectors in any comprehensive way, but the commercial

² On U.S.-Japan competition in semiconductors, see Borrus, Michael. *Competing for Control: America's Stake in Microelectronics*. Cambridge, Massachusetts, Ballinger, 1988.

³ *Far Eastern Economic Review*, May 24, 1990, p. 69.

⁴ U.S. Department of Defense. *Critical Technologies Plan* (for the Committees on Armed Services, U.S. Congress). Washington, March 1990.

sector now leads substantially in the crucial area of microelectronics. Due to the long production cycle in the defense industry, most U.S. military systems now use devices which are 5 to 7 years out of date. U.S. and Japanese producers introduce a whole new generation of devices every 2 to 3 years, whereas most military systems evolve on a 5-to-15-year cycle. The commercial market in many high-technology products has the advantage of greater size, which means greater incentives for producers and higher profits, which can be recycled into more R&D. The commercial market also offers more immediate and more widespread feedback on product performance. This encourages producers to put a premium on cutting production costs and improving manufacturing processes. Finally, increased competition for reliability and endurance in commercial markets means that these products now have to be as reliable, if not more reliable, than military-use products. In the foreseeable future, commercial-to-military "spin-ons" are likely to boom, while military-to-commercial "spin-offs" decline.⁵

Japan's greatest weakness in defense production comes in the realm of overall system integration. Japanese contractors lag in this area primarily because of their inexperience in developing their own weapon systems. They have advanced considerably by co-producing under license, but they will only be able to master the subtleties of system integration through the experience of developing their own new systems, or at least co-developing them with foreign producers. It is not surprising, therefore, that these contractors were so determined to indigenously develop the fighter support experimental, or "FSX." They will have to settle, however, for co-development of a modified General Dynamics F-16C.

The most formidable obstacles to the growth of the Japanese defense industry are not technological, but political. Japanese defense contractors are doubly constrained: they compete within a relatively small domestic market, and they are prohibited from selling beyond that market. Due to political sensitivities both at home and abroad, Japanese leaders have refrained from expanding the defense budget too quickly or acquiring blatantly offensive military hardware. In addition, these leaders have not permitted weapon system exports since World War II. Prime Minister Eisaku Sato officially articulated the arms export ban in 1967, and Prime Minister Takeo Miki further clarified it in 1976.

Despite these limitations, the defense industry has weathered the storms of the postwar years and has even managed slow but steady growth. The U.S. Occupation General Headquarters (GHQ) eliminated the Japanese defense industry at the conclusion of the Second World War, and the old arms factories were either destroyed or converted into shipbuilding or steel plants. The GHQ began to reverse its policy with the outset of the Korean War in June 1950, because U.S. forces needed a source of supplies closer to Korea than the United States. Japanese technicians gained valuable experience by serving as the primary maintenance workers for

⁵ For a discussion of the role of "spin-ons" in Japan's industrial strategy, see Samuels, Richard J., and Benjamin C. Whipple. *Defense Production and Industrial Development: The Case of Japanese Aircraft*. In: Johnson, Chalmers, Laura D'Andrea Tyson, and John Zyman, eds. *Politics and Productivity: The Real Story of Why Japan Works*. Cambridge, Mass., Ballinger, 1989. p. 275-318.

U.S. aircraft, ships, and other weapon systems, and manufacturers got a chance to get back into the business beginning in March 1952.⁶

Demand dropped after 1957, causing a number of defense contractors to go out of business, but things have stabilized since. The same six companies, three of which are electronics firms, have dominated the defense industry in recent years: Mitsubishi Heavy Industries (MHI), Kawasaki Heavy Industries (KHI), Mitsubishi Electric, NEC, Toshiba, and Ishikawajima, Harima Industries (IHI). Defense production still represents only about 0.5 percent of Japan's total production, so most of the major defense contractors do not rely heavily on defense sales. Heavy industry manufacturers such as MHI and KHI earn 10 to 25 percent of their sales from defense, while electronics firms such as Mitsubishi Electric and NEC earn 0 to 5 percent from defense. At the same time, however, Japan's top defense contractors are some of the country's largest and most powerful corporations. (See table 1.)

Japanese companies are finding the defense business increasingly attractive. They see defense as a haven of steady growth, since the yen-dollar realignment has deflated profits in some export sectors. The defense budget rose at a rate of at least 5 percent per year in the 1980s, despite severe fiscal austerity. Japan now spends more on defense than any other country except the United States and the Soviet Union, with an official fiscal 1990 (through March 31, 1991) budget of ¥4.159 billion (\$27.7 billion at ¥150 = US \$1).⁷ And within the defense budget, the portion going to equipment acquisition has also risen in recent years, from 26 percent in fiscal 1985 to 28 percent in 1989.⁸ Furthermore, Japanese companies see defense production as a way to move into a higher value-added sector. "We are being challenged by the Newly Industrialized Countries (NICs) in traditional consumer markets," explains Yasuo Komoda of Fujitsu. "We have to go value-added, and all that is left is space and defense."⁹

PROSPECTS FOR THE FUTURE

Several factors suggest that the prospects for the industry's continued growth in the next ten years are quite good. First, Japanese electronics firms—some of Japan's most competitive corporations—are showing more interest in getting into the defense business. They are rapidly becoming important suppliers of components to defense producers in the United States as well as in Japan.¹⁰ They

⁶ Ono, Sakichiro. *Boei sangyo no genjo to mondaiten* [The Present Situation and Problems for the Defense Industry]. *Boei Antena*, July 10, 1986. p. 15.

⁷ *The Military Balance 1989-90* (Oxford, International Institute for Strategic Studies, 1989) ranks Japan in fourth place behind the United States, the Soviet Union, and the United Kingdom. However, official Japanese figures for defense spending underestimate the actual level of spending because they do not include a number of items normally included in the defense budgets of other countries, such as retirements benefits for the Self-Defense Forces.

⁸ Japan. Defense Agency. *Defense of Japan 1989*. Tokyo, Japan Times, 1989. p. 317.

⁹ Interview with Yasuo Komoda, Manager, R&D Coordination Office, Fujitsu System Integration Laboratories, Ltd., and former major general, Ground Self-Defense Forces, Tokyo, July 14, 1988.

¹⁰ Several recent studies suggest that the United States is becoming too dependent on Japanese parts for defense production. See, for example, U.S. Department of Defense, Office of the Under Secretary of Defense for Acquisition, *Report of the Defense Science Board Task Force on Defense Semiconductor Dependency*. Washington, February 1987.

Table 1. JAPAN'S TOP TEN DEFENSE CONTRACTORS IN FISCAL 1989

Company	Sales (¥ billions)	Rank in 1988
1. Mitsubishi Heavy Industries.....	363.6	1
2. Kawasaki Heavy Industries.....	174.3	2
3. Mitsubishi Electric.....	111.7	3
4. NEC.....	71.0	6
5. Toshiba.....	68.3	4
6. Ishikawajima-Harima Heavy Industries.....	62.8	5
7. Nippon Seiko.....	31.2	7
8. Hitachi.....	26.2	
9. Komatsu.....	23.6	8
10. Fuji Heavy Industries.....	21.6	9

Source: Japan Economic Institute. *JEI Report*, No. 16B, April 20, 1990, p. 14.

expect to benefit from the growing breadth of electronics in defense production. The Electronic Industries Association estimates that the percentage of electronics in military systems has grown from 34 percent in 1981 to 40 percent in 1990, and will rise to 43 percent by the year 2000.¹¹ These firms are also interested in getting more involved in the defense business because they see that involvement as an imperative in keeping up in the high-technology race. They envisage commercial spin-offs from defense production, and they fear that they may miss out on new developments if they are not at least peripherally involved in the defense business. They view the defense industry as one which may drive innovations in other areas, such as electronic components.¹²

Second, the Japanese defense industry has its own political lobby which pushes for increasing the defense acquisitions budget and boosting the domestic share of production within this budget. These corporations expend more resources and more political capital on their defense business than might be warranted by defense sales alone. "Defense may only account for three percent of our business," reports Kunio Saito, general manager of NEC's 1st Defense Sales Division, "but it certainly takes up more than three percent of our energy."¹³ Defense contractors have one primary client, the Japan Defense Agency (JDA), so the incentives to lobby are great. The defense industry is represented by the Federation of Economic Organization's (Keidanren) Defense Production Committee, the Japan Defense Industry Association (*Nihon Boei Sobi Kogyokai*), the Japanese Aircraft and Space Industry Association (*Nihon Koku Uchu Kogyokai*) and the Japanese Shipbuilding Industry Association (*Nihon Zosen Kogyokai*). The individual companies, particularly major contractors such as MHI, do some lobbying of their own. They rely particularly on retired Self-Defense Forces (SDF) officers to maintain their ties with the JDA and the forces. Top Japanese

¹¹ *Aviation Week and Space Technology*, March 19, 1990, p. 201.

¹² Samuels and Whipple, in *Defense Production*, use the metaphor of a tree to explain why some Japanese planners feel that the aerospace industry is so important to technological development. The aerospace industry is a stem which is connected to both the "roots" (underlying technologies) and the "fruits" (related industries) of the tree. The point is not so much that one part of the tree is more important than another, but that the parts all depend on each other for their own healthy development.

¹³ Interview with Kunio Saito, General Manager, 1st Defense Sales Division, NEC Corporation, Tokyo, August 3, 1987.

bureaucrats have long had a tradition of "descending from heaven" (*amakudari*) into prominent roles in private industry after retirement at age 55 or 60, and some military officers follow this practice as well.

Third, there is a growing consensus in Tokyo that Japan should develop an autonomous defense industrial base. JDA officials have always sought to minimize reliance on foreign producers because they want to have the ability to maintain and to repair their systems at home. In addition, they argue that they are able to get better systems at a lower price from the United States when they have the option of domestic production. In essence, however, they simply do not like the idea of having to depend on the United States for military hardware. "It gives me chills to think how much we rely on U.S. parts," laments Fujitsu's Komoda, a former major general in the Ground Self-Defense Forces.¹⁴ Japanese officials' determination to develop an autonomous defense industrial base has increased substantially since the U.S. Congress threatened to disapprove the FSX co-development agreement in 1989. Right-wing political leaders such as Liberal Democratic Party (LDP) Dietman Shintaro Ishihara have called for completely indigenous development. Business leaders have threatened to replace their American partners with European ones.¹⁵ JDA officials declare that they will think twice before agreeing to co-develop a military system with the United States again. "The United States has caused the delay in the FSX project," says one senior JDA official, "but we have paid the price."¹⁶

Finally, Japanese defense producers envisage greater opportunities for exports in the future. Although they are prohibited from exporting military systems, they can export dual-use components and subsystems. Because commercial technology has become as durable and as reliable as military technology, Japanese producers can now offer components or subsystems which can meet military requirements with little or no adaptation. In 1983, the Japanese government made a partial exception to the arms export ban, allowing exports of military technology, but not military systems themselves, to the United States. Although so far Japan has not exported much military technology to the United States, even this limited opening to military technology exports gives new hope to the defense industry.

The "end of the Cold War"—the political transformation in Eastern Europe and the reduction in the perceived and actual Soviet military threat—may dash the high hopes of the Japanese defense industry over the longer term. For the time being, however, the end of the Cold War is much less threatening to the Japanese defense industry than it is to the U.S. defense industry. The Japanese government will probably continue to incrementally raise the defense budget in the 1990s irrespective of any decrease in the military threat, and a growing proportion of this budget will go to

¹⁴ Komoda interview.

¹⁵ The Mitsubishi group and the Daimler-Benz group of West Germany announced in March 1990, that they would cooperate on a wide range of ventures. Although Mitsubishi officials deny that they will work together on any explicitly military projects, the two partners would be ideally suited for cooperation in defense production.

¹⁶ Interview with senior JDA official.

hardware acquisitions.¹⁷ In addition, Japanese exporters of dual-use components to the United States should fare well, for while the U.S. defense budget may decline, this decline will be roughly offset by the rise in the proportion of the budget going to electronics.

MILITARY RESEARCH AND DEVELOPMENT

JDA officials have done their best within a limited budget to keep up with the United States in the most important military technologies. Present research and development (R&D) programs indicate that they have been largely successful in this effort, and that they may even close the gap in some areas. The miracle of Japanese military R&D to date is how much the JDA has achieved but how little it has spent. The R&D budget has generally only accounted for 1 percent of the defense budget, which itself is only about 1 percent of the gross national product (GNP). Military R&D spending has been increasing by 10 to 15 percent annually over the past few years, however, reaching ¥82.8 billion, or 2.1 percent of the defense budget, in fiscal 1989.¹⁸

The JDA's Technical Research and Development Institute (TRDI) coordinates all military R&D and weapons testing and conducts the government's portion of research. The TRDI is a division within the JDA with a civilian director-general and four uniformed directors in charge of ground systems, naval systems, air systems, and guided weapon systems, respectively. The JDA decided to reorganize the TRDI on July 1, 1987, in order to use its limited budget more efficiently. The primary goal was to eliminate programs which could be handled by the private sector, such as nutrition research, and to concentrate on areas of Japan's greatest potential strength, such as optics, electronics, and command, control, communications and intelligence (C3I). In particular, the TRDI restructured its Second Research Center to promote the integration of Japanese commercial technology into military systems.

The TRDI tries to restrict itself to those areas which are either too general or too risky for the private sector to undertake. In the case of in-house research, the TRDI transfers the technology to contractors if the JDA decides to procure the system. In most cases, however, the TRDI commissions private firms to conduct research or to cooperate with TRDI's projects. Defense contractors generally are reluctant to engage in defense research at their own expense unless they are confident of being effectively paid back through procurement, but there are exceptions.¹⁹ In the case of the FSX, a consortium led by MHI was willing to initiate research well before any decision on procurement was made. Ishikawajima Harima Industries formed a similar group on jet engines.

The TRDI has had a number of successes in recent years, but none has been more notable than the ASM-1 series of missiles. The TRDI and Mitsubishi Heavy Industries started developing the

¹⁷ I have argued elsewhere that Japanese defense policy is more responsive to changes in U.S.-Japan relations than to changes in the Soviet threat. See *Japanese High Technology*, p. 65-92.

¹⁸ Japan, Defense Agency, *Defense of Japan*, p. 317.

¹⁹ Official figures actually underestimate government spending on defense R&D because much of the development work is paid for through procurement.

ASM-1 (Type 80) air-to-surface missile in 1973, and began production in 1980. F-1 and other fighter aircraft now carry the 50-kilometer range, Mach 1 speed missile for attacks on surface ships. The missile uses inertial guidance in mid-course and active radar homing in its terminal phase.²⁰ MHI has been widely heralded for completing development within budget and on schedule, and for producing a missile that has achieved exceptional hit-rates in field tests. In 1979, MHI began development of a surface-to-surface missile, the SSM-1, based on the ASM-1. MHI designed the missile for the Ground Self-Defense Forces with a range of 150 kilometers so that it can be launched from points approximately 100 kilometers inland and still strike enemy ships well offshore. The missile is launched by rocket from a special MHI truck. The turbo-jet powered cruise missile then uses inertial guidance in its overland phase and part of its oversea phase, but switches to active radar homing as it skims over the water toward its target.²¹ The Ground SDF tested the missile at Point Mugu, California in 1987, and American observers were reportedly astounded by the missile's extraordinary hit-rate.

With the success of the SSM-1, the TRDI and MHI are planning two more ASM-1 derivatives: an XSSM-1B ship-to-ship missile for the Maritime SDF, and an XASM-1C air-to-ship missile for the Air SDF. (See table 2.) The XASM-1C, which will be carried on the FSX, will have a turbojet engine like the SSM-1 and will have a range of about 150 kilometers. The XASM-1C, however, will have an infrared image homing system using a higher precision infrared camera and a better image processing system than similar foreign weapons.²² Japan may continue to co-produce larger missile systems such as the Patriot or the Hawk, but it has no need of U.S. assistance in developing the smaller family of missiles. "We have caught up with the Americans in missile technology," boasts one TRDI bureaucrat, "but we have only been able to do so because of high-performance semiconductors, high-density integrated circuits, quality control, and microprocessors that have come from Japan's industrial technology base."²³

As mentioned above, the TRDI and defense manufacturers were determined to develop the FSX indigenously because this would give them a much needed double opportunity. They would be able to address their primary technological weakness, systems integration, and they would be able to try to tap their primary strength, dual-use technology. When the Japanese government agreed to co-develop a modified version of General Dynamics' F-16C in 1987, the decision was portrayed in Tokyo as a victory for the United States and a major loss for the Japanese defense industry. Since that time, the TRDI and MHI, the primary contractor for the Japanese, have made it clear that they plan to use the FSX opportunity as a learning experience, even within the co-development frame-

²⁰ O'Connell, John. *Strategic Implications of the Japanese SSM-1 Cruise Missile*. *Journal of Northeast Asian Studies*, Summer 1987. p. 54.

²¹ *Aviation Week and Space Technology*, March 21, 1988. p. 59.

²² Ibid. Also: Interview with Hiroshi Tajima, Deputy General Manager, Guided Weapons Department, and Takeki Wani, Deputy General Manager, Planning Department, Aircraft and Special Vehicle Headquarters, Mitsubishi Heavy Industries, Tokyo, July 8, 1988.

²³ *Kokubo*, October 1986. p. 31.

Table 2. SOME WEAPON SYSTEMS CURRENTLY BEING DEVELOPED BY THE TECHNICAL RESEARCH AND DEVELOPMENT INSTITUTE (TRDI)

Year R&D Started	System
Aircraft	
1983	Ship-board anti-submarine helicopter
1988	Fighter support aircraft (FSX)
Guided Missiles	
1986	Ship/air-to-ship missile (XSSM-1B, XASM-1C)
1986	Dogfight missile (XAAM-3)
1987	Portable surface-to-air missile
1989	Improved short-range surface-to-air missile
Vehicles	
1982	New main battle tank
Electronic Machinery	
1986	Division air defense data processing system
1988	New division communications system

Source: Japan. Defense Agency. *Defense of Japan 1989*. Tokyo, 1989. p. 310.

work. They are likely to end up with an aircraft that only vaguely resembles the F-16C. They may not be able to develop an airplane which can challenge U.S. aircraft, but Japanese producers will gain invaluable experience in the process. "We would like to catch up with the generation after the FSX," declares Sakichiro Ono of the Japan Defense Industry Association.²⁴

The most widely heralded subsystem being developed for the FSX is Mitsubishi Electric's active phased-array radar. Mitsubishi and the TRDI are reportedly 3 to 4 years ahead of Westinghouse, Hughes and Texas Instruments in that they have already produced two prototypes and tested them on a C-1 aircraft at the TRDI's Gifu test center. The radar, which has more than one thousand "active" radiating elements, boasts ultra-high resolution and unprecedented terrain-mapping capabilities. The TRDI also leads the United States in the manufacturing technology for the FSX's carbon-composite wings. The Japanese are able to "co-cure" the ribs and one surface of the wing, eliminating the need for many heavy rivets, thus producing a lighter and stronger wing. General Dynamics has shown interest in obtaining both the radar and the wing technologies through the flowback provision in the November 1988 FSX agreement. U.S. critics of the deal have belittled the importance of these technologies, but they miss the point. The flowback provision ensures that the United States will have access to other technologies developed as part of the FSX project, and it sets a valuable precedent, because Japan will have much more technology of interest to the U.S. military later in the 1990s and beyond.

THE CHALLENGE FOR THE UNITED STATES

The growing strength of the Japanese defense industry poses a profound challenge to the United States. As the Japanese defense industry becomes more independent, U.S. industry could lose out doubly. The U.S. industry could lose part of its share of a lucrative

²⁴ Interview with Sakichiro Ono, Executive Director, Japan Defense Industry Association, Tokyo, July 6, 1987.

export market—Japan, and it could gain a potential competitor in its home market and in third markets. If the United States withholds its military technology from Japan, it will only make Japanese officials all the more determined to develop their own defense technology base. The United States is thus faced with a cruel dilemma: either transfer its military technology to Japan, or push Japan further toward indigenous development. Japanese officials claim that the United States has become much more reluctant to transfer military technology to Japan since 1980. The United States has “black-boxed” its most sensitive technology in co-production deals. Although, from the U.S. perspective, this represents nothing more than legitimate protection of the national interest, it is nonetheless viewed in Tokyo as a sign of distrust and an important reason to develop an independent defense technology base.

Ultimately, the United States cannot prevent the Japanese defense industry from maturing. The United States, however, can work to secure access to Japan's defense market, and to Japan's military technology, for the long-term future. The U.S. Government has already made important strides in gaining access to Japanese military technology in the expectation that Japanese companies will have much more technology to offer the U.S. military in the future. The United States and Japan set up the framework for Japan to transfer military technology to the United States in 1983. The two countries established a Joint Military Technology Commission (JMTC) to oversee technology transfers. To date, three technology transfers have been approved, all of which were contrived more for their role as precedents than for any actual benefit to the United States. The first case involved the guidance and control system for the Toshiba Keiko portable surface-to-air missile, a system heralded as a success in Japan but nonetheless of questionable value to the U.S. military. The JMTC approved the transfer in December 1986, but the sale was never carried out due to the political fallout after the Toshiba Machine Co. was discovered to have sold advanced milling machines for use in silencing submarines to the Soviet Union. In the second case, Ishikawajima-Harima Industries sold shipbuilding technology for tactical auxiliary oil tankers to the Pennsylvania Shipyards of the Military Sealift Command. In the final case, an industry-to-government transfer, IHI sold its expertise to the U.S. Navy's Philadelphia Shipyard for overhauling the U.S. aircraft carrier Kitty Hawk under a service-life extension program. Since 1983, the Department of Defense has sent a series of technology assessment teams to Japan to evaluate Japanese technology in optoelectronics, new materials, and manufacturing. Japan-to-U.S. military technology transfers may finally take off with the flowback provision in the FSX agreement. In 1990, the United States and Japan agreed to work together on military R&D in three areas: degaussing (erasure of magnetic signature) techniques for submarines, missile seekers, and ducted rocket engines.²⁵

Co-development, for all of its difficulties, offers a solution to a U.S. dilemma. It institutionalizes Japan-to-U.S. technology flow-

²⁵ *The New York Times*, March 28, 1990.

back. More importantly, it provides U.S. industry with continued access to the Japanese market. Although most Americans would have preferred that Japan buy an American plane "off-the-shelf" as its next fighter plane, this was never a viable option. Japanese industry set out in the late 1970s to develop the capability to develop the FSX indigenously and to lobby the government to choose domestic development. The U.S. Government might have been able to convince the Japanese to buy an American plane if it had pressed its case in the early 1980s, but by 1987, and certainly by 1989, it was too late. With co-development, U.S. contractors will still retain a significant share of the development and production work. Moreover, co-development ties the fates of the Japanese and U.S. defense industries, preventing the Japanese defense industry from "going it alone" until well into the 21st Century. If the Japanese defense industry is going to mature anyway, the United States would do best to see the industry's new strength as an opportunity as well as a challenge.

JAPAN'S FOREIGN AID PROGRAM: ADJUSTING TO THE ROLE OF THE WORLD'S LEADING DONOR

By Larry Q. Nowels ¹

CONTENTS

	Page
Overview.....	397
Major Features of Japanese Aid and Proposals for Change.....	398
Size and Allocation of Japanese ODA.....	398
Size of ODA.....	398
Regional/Country Distribution of Japanese ODA.....	401
Changes in Controversial Features of Japanese Foreign Aid.....	402
Terms of Japanese ODA.....	403
Types of Japanese Assistance.....	404
Tied Status of Japanese ODA.....	405
Japan's Capacity To Manage Its Growing Aid Program.....	405
"Request-Based" Policy.....	406
Japanese ODA Staff.....	407
Opportunities for U.S.-Japan Aid Cooperation: Implications for the United States.....	408

OVERVIEW

Japan emerged in the late 1980s as a leading international donor of financial assistance to developing nations. A growing component of Japanese initiatives to increase resource transfers to the Third World is Tokyo's foreign aid program—also referred to as official development assistance (ODA)—through which Japan provides economic grants and concessional loans to developing countries and multilateral aid agencies. A major recipient of foreign aid only 25 years ago, Japan now has an ODA program larger than that of the United States. Japan is a significant force within the community of international aid donors.

Japanese officials view the expansion of foreign aid as an important means by which to implement Tokyo's objective of making a greater "international contribution," including fostering development in the Third World. Japan has also used foreign assistance to accommodate pressures from western nations, particularly the United States, who urge Japan to assume more responsibility in dealing with global economic problems and supporting mutual security and political interests.

Japan has received considerable credit for its rapid increase in foreign aid spending, particularly at a time when other donors are finding it difficult to sustain growing ODA levels. But as the

¹ The author is a Specialist in Foreign Affairs, Foreign Affairs and National Defense Division, Congressional Research Service.

United States and other donors have discovered in the past, Tokyo is finding that as its importance to the international economy as a source of concessional assistance grows, its foreign aid program is coming under closer scrutiny. More intensive examination, not surprisingly, has led some analysts to raise questions and concerns regarding various aspects of Japan's ODA program. Japanese officials acknowledge some of the shortcomings mentioned by critics and note that with such a rapid growth in foreign aid, the program is "about to enter a new and unexplored phase."² But in other areas, where observers have identified what they consider weaknesses of Japan's ODA, Japanese officials are increasingly defending their aid policy in terms of their own recent experience as a developing country. They believe that principles important to Japan's transition from a poor nation to an international economic power, while different from practices of other western donors, are relevant to the needs of many Third World nations and appropriate for their ODA policy.

The emergence of Japan as the world's leading bilateral foreign aid donor, a position held by the United States for over 40 years, raises both opportunities and challenges for American policymakers. Faced with severe budget limitations and a desire for allies to assume a larger share of global security costs, the United States Government has encouraged Japan to increase its foreign aid spending and has frequently sought Japanese financial support for emerging foreign policy requirements of mutual interest. But an expanding Japanese aid program may also lead to the growth of Japanese markets and investment opportunities in some developing countries, particularly outside Asia. This may require the United States to share power and leadership in international aid policy matters and possibly reduce U.S. influence and leverage among some recipients.

MAJOR FEATURES OF JAPANESE AID AND PROPOSALS FOR CHANGE

As Japan's foreign aid assumes a more prominent and influential role in international development policy, the ODA program is attracting considerable foreign attention, as well as greater scrutiny within Japan. In a sense, Japan's aid program is in the midst of a major transition as it adjusts to a new role and tries to "catch-up," in an aid policy sense, with the rest of the international donor community. Considerable interest, particularly within the United States, has focused on three major aspects of Japanese aid policy: 1) the size and allocation of aid funds; 2) attempts to improve the "quality" of Japanese assistance; and 3) Japan's capacity to effectively implement and manage its growing ODA program.

SIZE AND ALLOCATION OF JAPANESE ODA

Size of ODA

By nearly all measures, the volume of Japan's ODA program has grown significantly, particularly in the latter half of the 1980s. ODA net disbursements averaged around \$3 billion in the early

² Japan. Ministry of Foreign Affairs. *Japan's ODA 1989*. Tokyo, 1989. p. 18.

1980s, jumped to \$5.6 billion in 1986 and to \$9.1 billion in 1988 (table 1). Some of this growth can be accounted for by the sharp appreciation of the yen in the mid-1980s. But even after accounting for exchange rate changes and inflation, Japanese ODA grew in real terms by 41 percent between 1980/81 and 1987/88 (table 2). By comparison, real growth in U.S. ODA during this period stood at 10.6 percent, and real increases from other members of the OECD Development Assistance Committee (DAC) totalled 22.4 percent.³ As disbursement of Japan's 1988 pledge to increase ODA to \$50 billion over five years occurs, Japan has passed the United States as the leading ODA donor and will also exceed its \$10 billion annual target. In both 1987 and 1988, Japanese commitments of ODA were larger than that of the United States—in 1988, Japan committed \$13.7 billion, compared with \$11.2 billion by the U.S. (figures include debt relief strategies). Japan appears likely to sustain the growth of its aid program into the 1990s. The ODA budget approved for the fiscal year beginning April 1, 1990 increases foreign aid resources by about 6.7 percent.⁴

Table 1. OFFICIAL DEVELOPMENT ASSISTANCE: 1980–1989

	(Net disbursements)									
	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
Japan:										
\$ billions	\$3.35	\$3.17	\$3.02	\$3.76	\$4.32	\$3.90	\$5.63	\$7.34	\$9.13	\$8.96
% of GNP .....	.32	.28	.28	.32	.34	.29	.29	.31	.32	.32
% of total DAC	12.3%	12.4%	10.9%	13.6%	15.0%	12.9%	15.4%	17.7%	19.0%	19.3%
United States:										
\$ billions	\$7.18	\$5.78	\$8.20	\$8.08	\$8.71	\$9.40	\$9.56	\$8.95	\$10.14	\$7.66
% of GNP .....	.27	.19	.27	.24	.24	.24	.23	.20	.21	.15
% of total DAC	26.3%	22.6%	29.5%	29.3%	30.3%	32.0%	26.1%	21.6%	21.1%	16.5%
Total DAC:²										
\$ billions	\$27.30	\$25.57	\$27.78	\$27.59	\$28.74	\$29.43	\$36.66	\$41.436	\$48.09\$	46.50
% of GNP .....	.35	.35	.38	.36	.36	.35	.35	.34	.36	.33

¹ The sharp decline in U.S. ODA disbursements in 1989 results primarily from two 1988/89 payments to the International Development Association, both made in 1988.

² DAC = Development Assistance Committee of the OECD.

Japan's share of total DAC ODA disbursements has also grown significantly, rising from 11.76 percent in 1979 to about 15 percent in the mid-1980s, and to over 19 percent in 1989 (table 1). The one measurement of Japan's ODA growth that has not increased in a substantial way during the 1980s has been ODA in terms of the gross national product. ODA as a proportion of GNP has remained

³ The Organization for Economic Cooperation and Development (OECD) is a group of 24 nations, including Western Europe, Canada, the United States, Japan, New Zealand, and Australia, designed to promote sound and stable economic policies in member countries, international economic development, and expanded international trade. The Development Assistance Committee (DAC) of the OECD, one of several specialized OECD committees, includes nineteen members that review the amounts and types of assistance provided to the developing world and consult on various aspects of their development aid policies.

⁴ Japan's foreign aid program is funded in two ways. The general account portion largely finances the grant component of Japan's ODA program and comes out of appropriated funds. This part of the aid budget will increase about 8.2 percent over the 1989 level, the highest jump in ODA general account spending since the 10 percent increase in 1985. In addition, the ODA general account represents the single budget item receiving the largest growth of any Japanese program funded for 1990, including defense and domestic spending. The other sizeable portion of Japanese ODA, the "operation" account, primarily supports foreign aid loans extended through the Overseas Economic Cooperation Fund (OECF). These funds are derived from the government's loan and investment program, an activity that does not require direct appropriations.

Table 2. REAL VOLUME OF ODA

(Net disbursements expressed in 1987 prices and exchange rates; \$ billions)

	1970/71	1975/76	1980/81	1987/88	Real Increase 1980-88 (%)
Japan	\$2.677	\$3.062	\$5.463	\$7.700	40.95%
United States	\$8.006	\$7.997	\$8.480	\$9.376	10.57%
Other DAC	\$13.246	\$16.699	\$21.277	\$26.044	22.40%

relatively constant at around 0.3 percent during this period (table 1). For 1988 and 1989, the ODA level rose to 0.32 percent of GNP, and Japan has expressed its intent to reach the average for all DAC members (averaging around .35 percent in the 1980s) in the next few years.

Despite the steady rise in Japanese ODA spending, some believe that Tokyo should spend more—in some cases, considerably more. Within Japan, proponents, including former Foreign Minister Saburo Okita, believe that by the year 2000, Japan's ODA program should grow to about 1 percent of GNP, a level that would place it among the largest DAC donors in terms of gross national product.⁵ Others believe that, at a minimum, Japanese aid should grow substantially, aiming initially at the DAC average, and later at the 0.7 percent of GNP "target" agreed to by DAC members.⁶

Observers in the United States frequently have placed the question of Japanese foreign aid spending within the larger issue of "burden-sharing" among the western allies. In this context, proponents of higher Japanese ODA budgets, a group that includes many in Congress, suggest that combined Japanese defense and foreign aid expenditures should rise to approximately the average of NATO members.⁷ They argue that for many years Japan has enjoyed the security benefits of a strong American presence in Asia without making a commensurate financial contribution, and that economic assistance provides an alternative means by which Tokyo can respond and contribute to its own security as well as that of its western partners. With existing domestic limitations and foreign pressure to maintain Japanese defense spending at about 1 percent of GNP, such a scenario could put Japanese aid levels at above 2 percent of GNP, or about seven times the current amounts.⁸

Others believe, however, that the present size of Japan's aid program—in terms of volume and as a percent of GNP—is sufficient; that Japan has clearly demonstrated its willingness to increase ODA resources to an appropriate level, and that suggestions to go substantially higher are unrealistic, inappropriate, and perhaps

⁵ Okita, Saburo. Japan's Quiet Strength. *Foreign Policy*, no. 75, Summer 1989, p.134. The Japanese Government, however, has stated that suggestions to increase its foreign aid budget to 1 percent or more of GNP "cannot be regarded as a practical target." [*Japan's ODA*, 1989, p. 21.]

⁶ Islam, Shafiqul. Japan's Foreign Aid: Money in Search of a Manager. *Leviathan*, April 1990.

⁷ For several years, Congress has included a provision in annual Defense Department authorization bills recommending such action by Japan. The most recently enacted version (P.L. 101-189, National Defense Authorization Act for Fiscal Years 1990 and 1991, section 913) suggests that Japan increase defense and ODA spending so that, by 1992, the combined total would approximate the NATO average.

⁸ The significant reduction in East-West tensions and improved U.S.-Soviet relations in the past year, however, are likely to affect the question of burden-sharing and whether aid programs will be part of future debates on the matter.

even unwise. A Japanese aid budget of around 2 percent of GNP would result in an ODA program larger than the combined total of all other major western donors. It is said that such a large amount could not be effectively absorbed by the Third World in the short term, nor would such levels be supported within Japan, where the government is running a deficit with a budget where foreign aid already enjoys a priority status. Proponents of this view, instead, believe that international attention should shift from a focus on the size of Japanese ODA spending to a closer examination of how Japan spends the considerable sum it currently transfers. Continuing rapid growth in the size of foreign assistance, they believe, might further complicate the difficulties facing Japanese aid administrators in effectively managing a program in transition. Others also caution against a larger Japanese aid program, noting that an increased ODA profile, particularly in countries and regions where Japan has not maintained a significant commercial presence, would likely assist in the opening of new Japanese markets.

Regional/Country Distribution of Japanese ODA

Since the initiation of its foreign aid program, Japan has placed a heavy emphasis on recipients in Asia. Fifteen years ago, Japan allocated over 82 percent of its ODA in the region, an amount that declined somewhat in the 1980s, but still sits at 72 percent in 1987/88 (table 3). While Japan has increased the absolute amounts of its assistance to other regions in an effort to make its program more global in nature, aid levels for Asia have also grown. Consequently, the proportional distribution and the heavy emphasis of Japanese ODA on Asia probably will not change, at least in the near term. The international community has also called upon Japan to increase its grant assistance to the poorest nations of the world, particularly in sub-Saharan Africa. Japan has responded with higher spending in Africa, including a \$600 million program over the next three years, a pattern that has also resulted in a modest increase in the share of its ODA which is distributed to that region. In early 1990, Japan also pledged large amounts of assistance for Eastern Europe, but will program most of that aid on terms too hard to qualify as ODA.

Table 3. GEOGRAPHICAL DISTRIBUTION OF JAPAN'S ODA

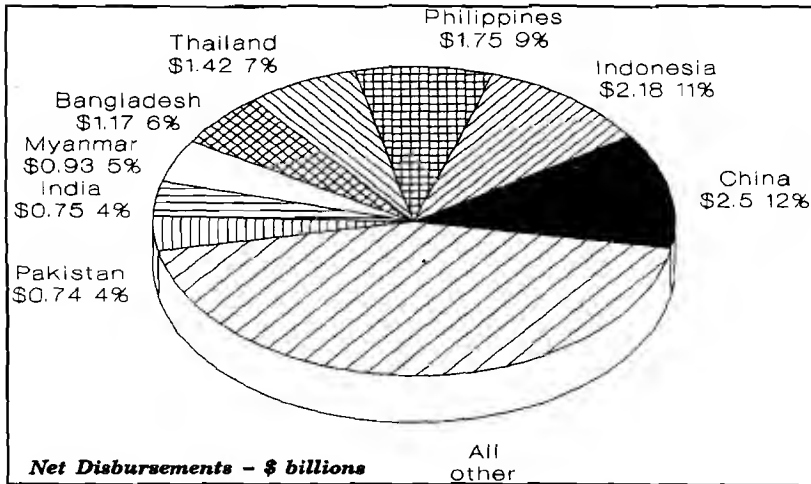
(Percent of gross disbursements)

	1975/76	1980/81	1987/88
Asia.....	82.4%	74.9%	72.3%
Middle East.....	7.4	8.3	8.5
Latin America.....	4.8	6.9	6.9
Sub-Saharan Africa.....	5.4	10	12.2

Reflecting this regional focus, Japan has allocated the largest portion of its aid to a relatively consistent set of Asian countries. China, Indonesia, and the Philippines have received about one-third of the total in recent years (figure 1). Egypt has been the only non-Asian country among the top ten recipients of Japanese ODA

in the past five years. Nevertheless, Japan has become an important source of assistance for selected non-Asian countries. In 1987, Japan was the largest bilateral donor to 29 countries—12 outside of Asia.

**FIGURE 1. Major Recipients of Bilateral Japanese ODA
1984–1988**



Some countries, including the United States, are increasingly calling on Japan to expand its share of aid outside Asia. Throughout the 1980s, Japan responded positively to U.S. appeals for increased aid to countries of special priority to the United States, particularly within a security or "strategic aid" context, such as Turkey, Pakistan, and Egypt. As noted earlier, congressional interest in the allocation of Japanese aid, like the question of size, has been raised frequently in the burden-sharing debate. In legislation, Congress has called upon Japan to distribute increased levels of assistance to countries outside East Asia, particularly in Latin America, the Caribbean, and the Mediterranean area, and to consult with its security partners prior to making allocation decisions.⁹ Although Tokyo has accommodated some of these appeals in the past, Japan is reluctant to cast its aid program in a "strategic" or political manner.¹⁰ Japanese officials believe that public opinion in Japan would not support an aid program where security considerations became matters of higher priority.

CHANGES IN CONTROVERSIAL FEATURES OF JAPANESE FOREIGN AID

While analysts familiar with Japanese aid policy differ over whether Tokyo should further increase the size of its aid program,

⁹ Section 913 of P.L. 101-189, National Defense Authorization Act, Fiscal Years 1990-1991.

¹⁰ For a discussion of the strategic aspects of Japanese aid, see: Inada, Juichi. Japan's Aid Diplomacy: Economic, Political, or Strategic? *Millennium: Journal of International Studies*, 1989, p. 399-414.

a broader consensus appears to exist on the need for Japan to change certain aspects of its program in order to improve the quality of its assistance. In general, the discussion of aid quality concerns how effective the financial support is to the recipient country in addressing its economic difficulties and contributing to opportunities for future growth and development. For Japan, the quality debate has tended to focus on three aspects: the mix of aid grants and loans and whether Tokyo should soften the terms of its ODA; the types of assistance—infrastructure, macroeconomic program aid, or technical assistance—emphasized by Japan; and the extent to which Japan “ties” its aid to the procurement of Japanese goods, a practice that reduces recipient governmental options in selecting alternative sourcing of aid-financed products. The latter two features also stimulate considerable discussion in the United States over the extent to which Japan’s foreign aid program is driven by commercial motivations. Japanese aid officials acknowledge that their rapidly expanding ODA program requires some policy adjustments and qualitative improvements. But on some issues concerning aid quality and development strategy, Japan maintains very different perspectives from those of other more “traditional” Western aid donors and appears less inclined to make significant changes. As a nation that recently made the transition from a poor to wealthy country, Japanese officials strongly believe that their own development experience is relevant to the requirements of the Third World and can be effectively integrated into their current ODA policy.

Terms of Japanese ODA

Japan maintains the least concessional ODA program among members of the DAC. In terms of grants as a share of total ODA, Japan stood last in the DAC in 1987 at 46.6 percent. The grant element of gross Japanese ODA disbursements in 1987 was also last among DAC nations at 75.4 percent—total DAC level stood at over 90 percent.¹¹ Such a position, however, is consistent with Japan’s broader view of economic development for itself and for developing nations. Japan regards “economic cooperation” in the sense of mutual responsibility between donor and recipient, seeking to create an atmosphere of “self-reliance” on the part of the receiving nation. In this way, loans impose a certain degree of discipline on the recipient to ensure that the assistance is applied effectively. Consequently, Japan adheres to a policy of allocating ODA on terms—grants or loans—appropriate, in its view, to the recipient’s general economic conditions and ability to repay loans. The terms are usually based on a country’s per-capita GNP level. In contrast, the United States, for example, has shifted to a virtually all-grant aid program (excepting some food assistance) in recent years, regardless of the economic standing of the recipient. Changing international economic conditions, growing debt burdens in the Third World, and the inability to increase aid budgets were key factors in

¹¹ Japan. Ministry of Foreign Affairs. *Outlook of Japan’s Economic Cooperation*. Tokyo, October 1989. p. 9–10.

the decisions of U.S. policymakers to reduce dramatically loans from the American aid program.

While these fundamental philosophical differences make it unlikely, in the near term, that Japan will substantially shift its aid grant/loan composition, Japanese officials state that increasing the grant-share of its aid to some degree remains a major priority. Japanese aid grants may rise, however, not necessarily as the result of a concerted policy to reduce loans in favor of grants, but rather, as a result of changes in the types of countries to which Japan extends assistance. As Tokyo increases ODA to poorer countries in Africa and South Asia, the proportion of grants and a higher proportion of concessional loans will almost certainly follow.

Types of Japanese Assistance

Another feature of Japanese ODA that sets it apart from most other donors is its emphasis on economic infrastructure and capital projects. Always a major purpose of the program, projects for transport, communications, energy, and other infrastructure needs have received an increasing share of ODA, growing from about one-third to one-half of the total (table 4). In contrast, the United States allocates less than 5 percent of its aid resources to economic infrastructure, and the total for all DAC countries in 1988 was only 21.7 percent. Again, the high priority placed on capital projects in Japanese development strategy may stem from Japan's own experience with development and Tokyo's support for many advanced developing countries, where the need for infrastructure is more apparent than in poorer nations.

Table 4. MAJOR PURPOSE OF JAPAN'S ODA

(Percent of total ODA commitments)

	1975/76	1986/87	1988
Economic Infrastructure.....	37.7	43.9	49.2
Social & Administrative Infrastructure.....	3.3	15.4	14.0
Industry & Other Production	20.6	8.7	13.5
Agriculture	5.5	10.2	9.0
Program Aid.....	31.9	21.8	14.3

Beyond the question of the role of capital projects in development strategy, however, Japan's emphasis on economic infrastructure projects helps fuel the continuing controversy over the extent to which Japanese ODA is driven by export promotion and commercial considerations. An aid program that emphasizes large capital projects can benefit domestic engineering firms and exporters of related equipment. While most analysts agree that a commercial objective has been the motivating factor of Japanese aid in the past, the issue is less clear today. Some quarters within the Japanese government appear to continue pressing for a strong export link within ODA. Others, however, seem more attuned to accommodating concerns raised by recipient nations desiring more flexible aid programming and by the United States desiring a program that is less tied to Japanese procurement. Japan has made one notable change in the types of assistance it supports by increasing the

share for social and administrative programs (education, health, population, public administration, etc.), an area that has grown from 3 percent of total ODA in the mid-1970s to 14 percent in 1988. Nevertheless, many observers in the United States continue to urge Japan to make a more dramatic shift in aid resource allocation, and, in particular, call for an increase in technical assistance funding and efforts to improve the capacity of Third World countries to develop their own human resources. Those who contend that Japan's aid is closely linked with commercial interests also encourage Tokyo to move away from a capital projects focus to other forms of assistance where Japanese export opportunities related to ODA funds will decline.¹²

Tied Status of Japanese ODA

Perhaps the most clouded and controversial aspect of Japanese foreign assistance is the extent to which the aid is motivated by Japanese private commercial interests and "tied" to the procurement of Japanese goods and services. On a statistical basis, as compiled by the OECD, Japan's ODA is the least tied of any of the major DAC countries (figure 2). But perceptions remain among donor and recipient nations that informal mechanisms at work in the project design and bidding process make the untied and partially untied aid far more closely linked to Japanese contracts and consultants than they appear. Some charge that Japanese private firms often play a major role behind the scenes in initiating project ideas that will be requested by recipient governments, or that engineering designs for large infrastructure projects are written to Japanese specifications. Both practices would give Japanese businesses considerable advantages in bidding on "untied" ODA projects. Complaints also persist from developing countries that partially untied aid is often channeled to in-country firms that are partly owned by Japanese interests, thereby reducing the financial impact locally.

While the issue of tied aid remains highly controversial, U.S. officials generally concede that Japan's ODA program is less tied than it once was.¹³ Many believe that, in order to dispel this continuing commercial image of Japanese aid, Tokyo must do more to clarify its procurement and bidding system. Many also argue that foreign businesses, particularly American firms, should work harder to understand this system and make serious efforts to participate.

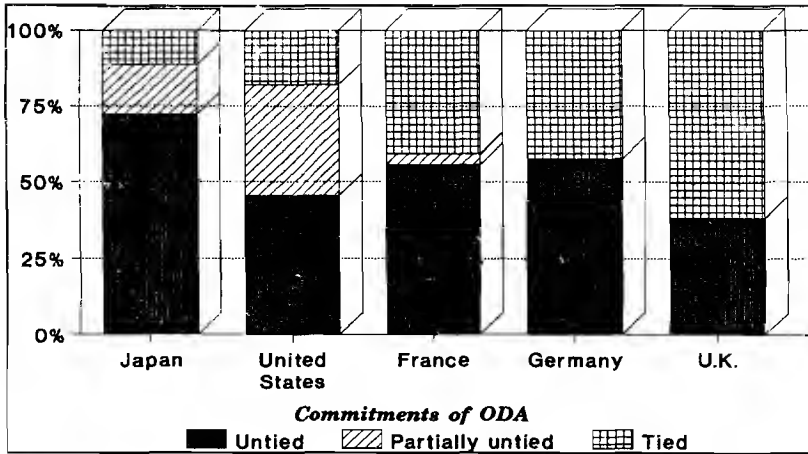
JAPAN'S CAPACITY TO MANAGE ITS GROWING AID PROGRAM

As the volume of Japan's aid has increased dramatically in recent years, Japanese officials have frequently acknowledged the challenges they face in effectively managing the program. Being

¹² See, for example, Preeg, Ernest. Trade, Aid and Capital Projects. *The Washington Quarterly*, Winter 1989, p. 173-185.

¹³ For example, Secretary of State Baker told the Senate Foreign Relations Committee in 1989 that "I think Japan is a bit more broad-gauged now in their approach to aid and trade, and they do not tie it quite as much as they used to." (U.S. Congress. Senate. Committee on Foreign Relations. *Foreign Assistance and State Department Authorization Bills*. Hearings, April 18, 1989, p. 62.) A former American AID official, currently U.S. Ambassador to Nepal, noted in a recent study that while the statistics on tied-aid may overstate the degree of Japanese untied assistance, "Japan continues to make progress in untying its aid." Bloch, Julia Chang. *A U.S.-Japan Aid Alliance: Prospects for Cooperation in an Era of Conflict*. U.S.-Japan Occasional Paper. Cambridge, Mass., Harvard University, 1989, p. 77.

FIGURE 2. Tying Status of Major ODA Donors, 1987



relatively new as a major provider of foreign economic assistance, Japan, by its own admission, lacks the experience and knowledge of other aid donors. The Foreign Ministry's most recent annual report on ODA notes that Japan is in "an era of groping in the dark" in terms of managing its aid program, and a 1989 government-sponsored report recommended new medium and long-term aid policies to improve implementation of Japanese ODA.¹⁴ Much attention has been focused on two issues related to the enhancement of Japan's management capabilities: the Japanese principle of "request-based" assistance, and the small and relatively inexperienced professional staff managing foreign aid policy and implementation.

"Request-Based" Policy

In the past, Japan has applied what is commonly referred to as the "request-based" principle in its relationship with recipient governments. This principle represents a further reflection of Japan's self-help view of development. Wishing to maintain a "neutral" program and hesitant to intrude directly into the policies of recipient nations, Japan has maintained an ODA system that requires foreign governments to "request" development projects. This practice is in sharp contrast to other bilateral donors, including the United States, who engage in extensive policy dialogue with recipients, frequently initiate and design aid projects, and to some degree condition aid eligibility on a government's compliance with economic policy reforms.

¹⁴ See, ODA Business Involvement, 'Strings' Criticized. *Mainichi Daily News*, October 11, 1989, p. 2. In, FBIS, East Asia edition, October 13, 1989, p. 5, Annex. See also, Government Urged to Map Out ODA Aid Policy. *KYODO*, September 11, 1989. In FBIS, East Asia edition, September 15, 1989, p. 6.

While Japan's "request-based" policy may have been an effective approach in the past, many analysts believe that as Japan emerges as an international economic leader, Tokyo must alter its passive style and become closely involved in all aspects of the development process. There is a growing opinion among observers in Japan and abroad that Japan should participate more extensively in project identification, evaluation, and donor coordination/consultation activities.¹⁵ Some analysts also believe that by applying the "request-based" principle, Japan encourages recipient governments to rely on Japanese businesses operating in their countries for ideas for, and designs of, appropriate development projects. Such practices, they contend, give Japanese consultants and exporters significant advantages in bidding on projects that have been conceived and designed with Japanese specifications.

Although Japan continues to maintain a "request-based" aid approach, there have been indications in the past year of movement in the direction of aid policy that is more consistent with that of other major donors. Japan appears to be increasing its policy dialogue with recipient governments. It is also expanding non-project assistance linked with policy reforms being undertaken by recipient countries.¹⁶ Japan has also noted recently that certain priority development sectors, such as the environment, may not receive sufficient attention by developing countries. Consequently, Japan will need to be more actively engaged in project identification, particularly in sectors where requests are not expected. For the future, Japanese aid officials have raised the prospect of greater emphasis on the "offer method," in which they would present a "menu of options" for recipients from which projects could be selected.¹⁷

Japanese ODA Staff

A central weakness of Japan's aid program—one frequently acknowledged by Japanese aid officials—is the lack of an experienced, growing, and career-oriented professional corps of aid officials. By international standards, the ratio of staff persons to program volume is exceptionally low. In 1988, for example, the United States employed about three times as many aid professionals as Japan, managing a program that was approximately 10 percent larger in volume.¹⁸ Aid per Japanese official was nearly \$5.9 million, while the figure for other major bilateral donors in the mid-1980s stood at \$1 to \$2 million per staff person.¹⁹ Moreover, while officials of the two Japanese aid implementing agencies—Japan International Cooperation Agency (JICA) and the Overseas Economic Cooperation Fund (OECF)—are career aid specialists, those administering the program in the Ministry of Foreign Affairs are career diplomats. They rotate out of aid administrative positions

¹⁵ Islam, *Japan's Foreign Aid: Money In Search of a Manager*.

¹⁶ Japan, however, still refrains from attaching conditions to its own aid transfers. Instead, in most cases, countries receiving Japanese policy-based assistance remain eligible so long as they are in compliance with conditions set down by the World Bank or the International Monetary Fund.

¹⁷ *Japan's ODA*, 1989, p. 28.

¹⁸ Orr, Robert M., Jr. *The Emergence of Japan's Foreign Aid Power*. Unpublished manuscript, scheduled for publication July 1990.

¹⁹ Koichi, Mera. Problems in the Aid Program. *Japan Echo*, spring 1989, p. 13.

after a few years, thereby preventing the development of a solid core of development expertise to guide the program on a continuing basis.

Japan's aid budget for 1990 includes modest proposals to address the serious shortage of aid professionals. The budget includes funding for the addition of 22 new aid positions within the Foreign Affairs Ministry and 34 at JICA, a relatively small increase, but higher than in past years. The new budget also permits the establishment of project evaluation units in the Finance Ministry and JICA, and allocates about \$34 million to create an "International Development University," aimed at educating development specialists.²⁰

Some believe that the lack of a strong development staff seriously impedes Japanese efforts to make changes and qualitative improvements in Japan's ODA program. Perhaps even with such personnel, Japan would choose not to make changes in its ODA programming practices. But it appears that without such a professional employee base, Japan has fewer options in addressing some of these aid reforms. For example, to move away from a passive, request-based aid policy, Japan would need a greater number of expert staff who could work with officials in developing countries to identify projects and plan longer-term development strategies. Shifting the emphasis away from capital projects would also be very difficult without additional staff. It is far easier for programmers to "move" money quickly through large infrastructure proposals rather than to channel funds through more labor-intensive technical assistance and small projects. Japan also might be better equipped to expand assistance further outside of Asia if its aid officials became more familiar with the needs and requirements of other regions, something that could change with enhanced staff training and experience in other parts of the world. A larger permanent professional staff would also greatly improve Japan's capability to monitor and evaluate its ODA programming. This also might reduce the potential for major aid scandals, an occurrence that could significantly erode public confidence in the ODA program and continuing support for rising budgets.

OPPORTUNITIES FOR U.S.-JAPAN AID COOPERATION: IMPLICATIONS FOR THE UNITED STATES

The United States has welcomed the rise in Japanese aid spending and Japan's contributions to foreign policy initiatives important to U.S. interests. American officials point to growing Japanese aid programs in Turkey, Pakistan, Jamaica, the Philippines, and elsewhere during the 1980s, as well as larger transfers to the multilateral development banks, as evidence of Japanese willingness to assume greater global responsibilities in serving key objectives of both countries. Japan has also sought increased aid consultation and coordination with the United States as it adjusts to its role as the number one donor. U.S. officials see this as an opportunity to help shape future Japanese aid policy, to ensure that Japan's development strategies are as consistent as possible with American

²⁰ Japanese Embassy document, January 1990.

aid objectives, and to seek greater U.S. business participation in overseas Japanese projects. In a relationship marked by considerable uncertainty and tension, some view U.S.-Japanese aid cooperation as an important positive aspect that may offset some of the disagreements that exist elsewhere.

Other observers caution that a growing Japanese aid program involves a series of trade-offs for U.S. foreign aid policy interests and relations with the developing world, some of which may not be desirable from an American perspective. An expanding Japanese aid presence in Third World countries will likely bring them greater political and economic influence, perhaps at the expense of the United States. It also may not be in the U.S. interest to support a perceived division of global responsibilities between the two countries, in which the United States provides security aid while Japan extends economic and development assistance.²¹ In this scenario, the United States assumes the role of the enforcer, while Japan is the provider. Japan's expansion of aid to Latin America and Africa, encouraged by the United States, may also result in expanded market opportunities for Japanese trading interests.

The United States and Japan have consulted frequently in the past several years on foreign aid issues. Some discussions occur during high-level exchanges, while others, such as meetings between AID's Asia bureau and the Japanese Foreign Ministry, bring together mid-level aid administrators. There is also frequent contact in the field, although this is somewhat limited by the small number of Japanese aid officials posted overseas and the high degree of centralized decisionmaking in Tokyo. The two countries have collaborated directly on projects in Bangladesh and Indonesia in which Japan, for the most part, provided infrastructure requirements and the U.S. offered technical assistance. In 1989, AID and the Foreign Ministry collaborated on a workshop to introduce American development consultants and businesses to Japan's aid program and how to participate in its projects. A follow-up session in Tokyo is scheduled for September 1990.

Nevertheless, some sense a breakdown in the coordination process—one former senior AID official characterizes the U.S.-Japan aid relationship as “checkmated between conflict and cooperation” and “settling into a period of hiatus.”²² Both sides express a strong desire to strengthen cooperative efforts, but problems exist. Some close observers believe that the United States gives mixed signals as to how committed it is to close collaboration and what it expects to achieve from these efforts. There also appears to be a growing sense of frustration among American aid officials that the extensive time invested in discussions with their Japanese counterparts has yielded relatively limited results. From the other side, Japan is not interested in an aid relationship that is premised on the concept of “Japanese money, U.S. ideas,” a perception that

²¹ About one-third of U.S. foreign assistance is military aid, while Japan is constitutionally restricted from providing military support.

²² Bloch, *A U.S.-Japan Aid Alliance*, p. 88.

sometimes emerges in these discussions. Likewise, Japan emphasizes that more extensive cooperation will not result in the dismantling of its current aid system or the abandonment of its fundamental development perspectives.

VII. INTERNATIONAL ECONOMIC RELATIONS

MARKET OPENING IN JAPAN: CHALLENGES FOR U.S. POLICY

By Raymond J. Ahearn ¹

CONTENTS

	Page
Summary	411
Extent of Japan's Protected Market	412
Japan's High and Inflexible Prices	412
Japan's Low Levels of Manufactured Goods Imports	414
Japan's Parochial Trading Patterns	415
Outlook	416
Impact of Market-Opening Negotiations	416
Impact of the Strong Yen	417
Impact of Import Promotion	418
Debate Over U.S. Policy	419
What Should the Primary U.S. Market Opening Objective Be?	419
How Should the United States Establish Market Opening Objectives?	421
How Should the United States Pressure Japan To Open Up Its Market Further?	422

SUMMARY

This article evaluates three questions related to Japan's protected market. First, what is the extent of Japan's market protection? Second, what is the outlook for market opening in Japan in the 1990s? Third, what policy challenges does the United States face in opening up the Japanese market?

The findings are as follows: Many indicators show Japan's market to be a protected one (one of the most highly protected in the industrialized world). There are also some indicators that point to a certain level of market opening. As a result, the gap is narrowing between Japan and other industrialized countries on a number of indicators of protection.

If current trends continue, access to Japan's market probably will improve in the 1990s due primarily to market opening negotiations, the strong yen, and new import promotion programs instituted by the government of Japan. This does not suggest that Japan's market will become as open as the U.S. market by the turn of the

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century, but that its behavior will continue to come closer to U.S. standards.

A challenge for U.S. Government policy in the 1990s will be to develop a consistent and coherent market opening strategy towards Japan. The basic elements of such a strategy could include agreement on what broad market opening objectives to pursue, the appropriate role of government in establishing priority targets, and the kind of pressure needed to open Japan's markets.

EXTENT OF JAPAN'S PROTECTED MARKET

There is much disagreement on the extent of Japan's market protection. Is it closed, "virtually impenetrable for many foreign businesses today," as the CEO of Allied Signal recently suggested?² Or is Japan's market one of the most attractive ones in the world "with relatively few barriers that matter", as an official at Citibank argues?³ Who is right or which position seems more supportable depends on the measures of closed and open that are employed.

The following sections summarize the data and arguments that are most commonly put forth to demonstrate that Japan's market is both relatively closed and relatively open. The data and arguments are presented according to three categories: Japan's high and inflexible prices; Japan's low propensity to import manufactured goods; and Japan's parochial trading patterns. The evidence surveyed indicates that Japan's market is not nearly as protected as many critics argue, but not nearly as open as most Japanese maintain.

JAPAN'S HIGH AND INFLEXIBLE PRICES

Japan's high prices are perhaps the strongest evidence of Japan's market protection, many argue. Numerous studies have found that various baskets of tradeable goods are much more expensive in Japan than in other developed countries. A recent joint study by Japan's Ministry of International Trade and Industry (MITI) and the U.S. Department of Commerce, for example, found that similar consumer goods on average cost 42 percent more in Japan than in the United States.⁴ Similar surveys conducted by Japan's Economic Planning Agency (EPA) have found that goods were cheaper in selected American cities by as much as 35 percent to 90 percent on average.⁵ The price gap is most dramatically illustrated by the so-called "47th Street Photo phenomenon." This refers to the fact that some products made in Japan such as cordless phones and cameras are sold at lower prices in New York City (sometimes 20 to 30 percent lower) than in Tokyo.

These price differentials imply that Japan's market is heavily protected. Such large price differentials present opportunities for

² Hennessy, Edward L. Jr. Japan's Market Is Closed Drum Tight. *New York Times*, October 1, 1989. Sec. 3, p. 2.

³ Rapoport, Carla. You Can Make Money in Japan. *Fortune*, February 12, 1990.

⁴ This joint study, which was conducted in the context of the Structural Impediments Initiative (SII), also found that prices in Japan were higher than in the United States on 84 of the 122 products surveyed. In many cases where Japanese prices were competitive, the products were not widely available in Japan. See: *Washington Post*, November 8, 1989, p. A5.

⁵ Japan. Economic Planning Agency. *Annual Price Survey*, 1988. Tokyo, 1988. p. 61.

arbitrage—buying products overseas and re-selling them in Japan at a profit. If there were not substantial barriers to entering Japan's market, a brisk trade in cheaper foreign goods would soon develop and over time the large price differentials would be eroded.

The Japanese side presents few counter-arguments to the claim that Japan's higher prices are implicit evidence of substantial market protection. Occasional attempts, however, are made to criticize the validity of pricing surveys which derive average price differentials between countries or to argue that the 47th Street Photo phenomenon is due to differences in specifications or different versions of a product.

Japan's inflexible prices are also argued by some to be a force protecting the Japanese market. This argument relates to the effect exchange rate changes should have on Japan's trade deficit.

An exchange rate is one of the most important prices in an economy: it is the price paid in domestic currency for foreign currencies. When the price (value) of domestic currency increases vis-a-vis the price of foreign currency, the normal impact is for the price of imported goods to decrease and the price of exported goods to increase. Since sales will generally increase when prices fall, in an economy where prices are flexible and where exchange rate changes are passed through to the traded goods sector, an appreciating currency would lead to a increase in imports and a reduction of exports (i.e. a reduction in a trade surplus and an increase in a trade deficit).

Some argue that Japan's trade surplus with the United States did not drop in the 1980s as a result of a weaker dollar (or stronger yen) to the same degree as did the European Community's trade surplus with the United States. While the decline in the value of the dollar against major European currencies contributed to almost a complete elimination of the U.S. trade deficit with the European Community (the deficit dropped from \$22 billion in 1987 to \$2 billion in 1989), the decline in the value of the dollar contributed to only a minor reduction in the U.S. trade deficit with Japan (the deficit declined from \$57 billion in 1987 to \$49 billion in 1989). Because exchange rate changes reduced Japan-U.S. trade imbalance very little, some analysts have concluded that Japan's pricing patterns are inflexible, and serve as a force protecting the Japan market.

Countering this argument, a number of Japanese analysts point to data indicating that the appreciation of the yen did have a substantial impact on U.S.-Japan trade flows, despite a minimal effect on the trade imbalance. In terms of trade flows, U.S. exports to Japan did grow faster than U.S. exports to the EC during this period. Although U.S. exports to the EC and Japan increased at about the same rate in 1987, they increased much faster to Japan in 1988 (35 percent for Japan as opposed to 26 percent for the EC) and in 1989 (20 percent for Japan as opposed to 9 percent for the EC). On the import side, U.S. purchases from the EC and Japan grew at approximately the same rates.

The reason offered by Japanese analysts why there was relatively little reduction in the U.S. trade deficit with Japan relates to the relative magnitudes of U.S. exports and imports to each trading partner. U.S. exports to Japan in 1986 were only one-third of

imports from Japan, but U.S. exports were almost three-quarters of U.S. imports from the EC. As a result, for the trade imbalance with Japan to be eliminated, U.S. exports have to grow more than three times as fast as imports. But in the case of the EC imbalance, U.S. exports needed to grow less than 1.5 times faster than imports for the imbalance to be reduced.⁶

JAPAN'S LOW LEVELS OF MANUFACTURED GOODS IMPORTS

Imports of manufactured goods, both as a percent of Gross National Product (GNP) and as a percent of domestic manufacturing output, are standard measures of an economy's openness to trade. Japan's level of imports of manufactured goods, according to both criteria, are substantially less than those of other countries—both developed and developing. Accordingly, these figures demonstrate that Japan's economy is less open to imports than most other economies.

In 1987, imports of manufactured goods accounted for only 2.4 percent of Gross Domestic Product (GDP) in Japan. The ratios of imports of manufactured goods for most other developed countries were between three times (7.3 percent for the United States at the low end) and seventeen times (41.4 percent for Belgium at the high end) greater than Japan's. Even among traditionally more protectionist developing countries, only India with a 5.6 percent ratio is close to Japan.⁷

The gap between Japan and the rest of the world is even greater for the ratio of manufactured imports to domestic manufacturing output. According to this indicator, the United States, with a ratio of 37 percent (a level that is over 4 times greater than Japan's), was closest to Japan among the developed countries listed. Eight of the developed countries (over half) had import ratios that were over 10 times greater than Japan's.⁸

Furthermore, Japan's ratios of manufactured goods imports to GDP and domestic manufacturing have been stable over a long period.⁹ While the majority of developed countries have greatly expanded imports of manufactured goods over time, Japan's ratios have shown little change. For example, as a percent of GDP, U.S. manufactured imports almost tripled between 1970 and 1987 while Japan's remained the same. In France, West Germany, Italy, Spain, Sweden, the United Kingdom and South Korea, manufactured imports as a percent of GDP also experienced major increases.¹⁰

Japanese officials point to two other sets of figures to demonstrate that the market is not closed as some conclude from the above figures. First, they maintain that the ratio of Japan's imports to GNP is actually increasing. Using 1986 as a base, Japanese officials point out that the ratio has increased from 2.4 percent in

⁶ Yoshitomi, Masaru. External Adjustments Almost Complete, but Conflicts with U.S. Are Continuing. *The Japan Economic Journal*, March 10, 1990, p. 8.

⁷ Lincoln, Edward J. *Japan's Unequal Trade*. Washington, The Brookings Institution, 1990, p. 19.

⁸ Ibid.

⁹ As noted below, a rise in the ratio of Japan's imports of manufactured goods as a percent of GNP has occurred in 1988 and 1989.

¹⁰ Lincoln, *Japan's Unequal Trade*, p. 19.

1986 to 3.7 percent in 1989. Even though this ratio is still lower than the ratios in the U.S. and European countries, they argue that Japanese market protection is not as high as it might seem because the 1989 ratio is about the same level as the U.S. ratio in the 1970s when its balance of payments was in a state of equilibrium.¹¹

Second, the Japanese side argues that an additional indicator of market openness—imports of manufactured goods as a percent of total imports—casts the Japanese import performance in a more favorable light. According to this indicator, Japan's ratio of manufactured imports to all Japanese imports increased from 31 percent in 1985 to 50 percent in 1989—a figure that is no longer conspicuously below that of other industrialized countries.

JAPAN'S PAROCHIAL TRADING PATTERNS

A third category of evidence regarding the extent of Japan's protected market relates to Japan's parochial trading patterns. These patterns relate both to a Japanese tendency not to buy substantial amounts of foreign goods in industries where Japanese producers are strong exporters and to the unusual extent Japanese firms control Japanese foreign trade.

Most advanced countries engage in a brisk trade in similar but highly differentiated products. Japan engages in a very modest amount of this kind of two-way trade (called "intra-industry" trade by economists) of similar goods such as automobiles and consumer electronics. According to one estimate, Japan does less than half as much intra-industry trade as the United States for both manufactured goods and all traded goods.¹² A low-level of intra-industry trade in an increasingly integrated world economy raises questions concerning market protection.

Differences in individual tastes and preferences for quality account for why European cars are popular in the United States and American vans popular in Germany. Why is it that Japan operates so differently in industries across the board? A lack of satisfactory explanations, in turn, contributes to foreign perceptions that Japan's market and consumers operate according to different rules.

The large gap between Japan's intra-industry trade and that of other developed countries most likely will narrow somewhat in the next few years. Foreign auto imports, for example, now constitute 4.5 percent of Japan's market and are projected to rise to 10 percent by the 1995.¹³ Such an increase would help to change the perception that Japan doesn't import significant amounts of foreign goods in which it is a world class exporter.

The unusual degree to which Japanese multinational companies dominate trade flows into and out of Japan is a second trade pattern often cited as an indicator of market protection. Robert Lawrence of the Brookings Institution presented data at a recent congressional hearing indicating that Japanese companies controlled almost 60 percent of all U.S. exports to Japan in 1986. U.S. compa-

¹¹ Japan. Ministry of International Trade and Industry. *U.S.-Japan Trade Today*. Tokyo, April 1990.

¹² Lincoln, *Japan's Unequal Trade*, p. 47.

¹³ Rapoport, *You Can Make Money in Japan*.

nies, on the other hand, controlled the shipment of only 14 percent of all products Japan bought from the United States in 1986. According to Lawrence, this high degree of Japanese corporate control over imports allows Japan to avoid importing products which compete directly with those their parent firms or associated companies manufacture in Japan.¹⁴ Stated differently, Japanese corporate control over imports limits the channels for getting foreign goods into Japan that compete directly with Japanese goods.

The degree of Japanese corporate control over trade appears to be weakening somewhat. The proportion of U.S. exports to Japan accounted for by Japanese companies fell to 40 percent in 1987.¹⁵ The large decline in this percentage indicates that more channels are opening for getting foreign goods into Japan that compete directly with Japanese goods.

OUTLOOK

The outlook appears good that access to Japan's market will improve in the 1990s. The effects of current and possibly future market-opening negotiations, the strong yen, and new Japanese government import promotion policies should promote a more open market. This is not to suggest that Japan's market by the turn of the century will become as open as the U.S. market, but that its behavior may well continue to come much closer to the U.S. level.

IMPACT OF MARKET-OPENING NEGOTIATIONS

Over the past decade, the U.S. Government has engaged Japan in numerous negotiations to eliminate or lessen barriers that American firms encounter in selling in Japan. Over a dozen industries and problems have been the focus of the negotiations. While the negotiations may have helped reduce Japan's formal and informal import barriers, not all have resulted in increased export sales for U.S. producers. U.S. efforts that have lessened Japanese barriers affecting semiconductors, baseball bats and auto parts, for example, have had negligible effects on U.S. exports. Other negotiations affecting U.S. sales of beef and citrus, cigarettes, telecommunications equipment, electronics products, medical devices and pharmaceuticals, and forestry products have been more successful in boosting U.S. exports.

In general, success in increasing U.S. exports has occurred in those negotiations where a Japanese government barrier that could be eliminated was the binding constraint on increased sales. Conversely, failure to increase U.S. exports quite often occurred in those negotiations where Japanese private business practices were the binding constraint.

Negotiations to provide foreign cigarettes greater access to Japan's market have had the most dramatic results. These negotiations focused on the reduction of a high tariff rate and the privatization of a Japanese government tobacco monopoly. As a result of

¹⁴ Lawrence, Robert. Prepared statement before the Joint Economic Committee. In U.S. Congress. Joint Economic Committee. *The Japanese Market: How Open Is It?* Hearing, 101st Cong., 2d Sess., October 11, 1989. Washington, U.S. Govt. Print. Off, 1989. (Hereinafter referred to as Lawrence, JEC testimony.)

¹⁵ Lawrence, JEC testimony.

reducing these government barriers, the U.S. market share jumped from 2 percent in 1985 to over 14 percent in 1989. Philip Morris with 8 percent of the market to itself, predicts that foreigners will capture 30 percent of the business within five years.¹⁶

The so-called Market Oriented Sector Selective (MOSS) negotiations of the mid-1980s also contributed to increased sales of products in four sectors: telecommunications, electronics, medical devices and pharmaceuticals, and forestry products. From 1985-1987, U.S. exports in these four sectors combined increased by over 15 percent, well above the 6 percent increase in total U.S. exports to Japan over the same period.¹⁷

The recently concluded Super 301 negotiations regarding satellites, supercomputers, and forestry products should all lead to increased U.S. sales. The agreements on satellites and supercomputers are likely to result in new sales worth several hundred million dollars. The easing of barriers for processed wood products, such as laminated planks or plywood, could add between \$1 to \$2 billion in increased export sales for U.S. producers. Nevertheless, U.S. satellite makers Hughes Aircraft, Ford Aerospace and General Electric will encounter stiff Japanese competition in a more open bidding process for commercial satellites. Cray Research, the potential U.S. beneficiary of the supercomputer agreement, will also face stiff competition from NEC, Fujitsu, and Hitachi in bidding on government-funded projects.

Implementation by Japan of commitments announced in the April 1990 interim Structural Impediments Initiative (SII) report should also promote a more open market, but the impact on U.S. exports is more uncertain. Increased Japanese government spending on roads and social infrastructure should increase Japan's demand for imports. Efforts to facilitate the establishment of large scale retail outlets could provide additional outlets for imported goods. More effective antitrust enforcement could curtail cartel-type practices that are common in Japan's construction industry, thereby enhancing the opportunities for foreign firms to participate in Japan's market. Yet the precise effect of these measures and the extent to which U.S. exporters will benefit from them are difficult to estimate.

IMPACT OF THE STRONG YEN

The dramatic appreciation of the yen from 1985-1987 has been a major force for a more open market as the Japanese bought more foreign goods as they became cheaper. Against the dollar, the yen rose nearly 65 percent, going from 240 yen to the dollar to around 135 yen to the dollar. This appreciation increased the world price of Japanese exports and reduced the price of Japan's imports. Consequently, the volume of Japan's imports grew twice as fast (18.6 percent versus 9.6 percent) as Japanese exports.¹⁸ This represented

¹⁶ Rapoport, *You Can Make Money in Japan*.

¹⁷ U.S. General Accounting Office *U.S.-Japan Trade: Evaluation of the Market-Oriented Sector Selective Talks; Report to the Congress by the Comptroller General of the United States*. July 1988. Washington, 1988.

¹⁸ In the process, Japan's global trade surplus dropped from a peak of \$82.7 billion in 1986 to \$64.3 billion in 1989.

an increase of almost \$100 billion in imports from the 1986 import level of \$126 billion to the 1989 level of \$210 billion.

Besides directly facilitating strong import growth through changes in the prices of imports and exports, yen appreciation is opening the Japanese market in three indirect ways. First, the strong yen has facilitated an upsurge in travel outside of Japan. Second, it has promoted a surge of Japanese direct investment abroad. Third, it is spurring a variety of changes in the distribution system.

The strong yen has made foreign travel a bargain for millions of Japanese. Over 10 million Japanese (nearly 10 percent of the population) traveled abroad in 1989. Through travel to Asia, Europe, and North America, millions of Japanese are realizing first hand the high cost of goods and housing in Japan compared to the rest of the world. Many tourists return to Japan more receptive to trying cheaper foreign products and more demanding in having greater choice that imports provide.

Japan's big manufacturing firms reacted to the high yen by accelerating their investments in foreign countries. In the aggregate, Japanese foreign investment has soared from around \$10 billion in 1985 to over \$30 billion in 1989. Some of the production set up abroad is intended to be exported back to Japan. Sony color television sets produced in the United States or Canon cameras produced in Taiwan may help to improve the image of even non-Japanese brand goods made abroad. Furthermore, to remain competitive many large manufacturing firms are actively searching out cheaper inputs and components from abroad.

The competitive strains resulting from the high yen are also forcing changes in the distribution sector as demand for imports increases. To stay competitive, existing distributors seek new ways to market imports. A number of supermarkets and department stores contract for imported apparel products to be marketed directly under their brand or store names. Large manufacturing companies are turning to foreign firms as well as their subsidiaries to develop final products to be made to their own specifications. In addition, new distribution channels are developing. Discount and specialty stores carrying products from developing countries are opening throughout Japan. Mail order purchasing is also growing. These changes all serve to increase imports.¹⁹

For these changes to have a substantial impact on market access in the 1990s, the yen will have to remain strong. No appreciation has occurred since 1987, and during the past year the yen has actually weakened significantly against the dollar. But most economists expect the yen to strengthen from the current Y156 to the U.S. dollar to near Y100 to the U.S. dollar by the end of the decade.²⁰

IMPACT OF IMPORT PROMOTION

In January 1990, the government of Japan unveiled new tax credit, loan, and informational programs to promote imports. The

¹⁹ Ahearn, Raymond. *Japan: Prospects for Greater Market Openness*. Report No. 89-390 F. Washington, Congressional Research Service, 1990. p. 32-34.

²⁰ Elwell, Craig. Cited in *Japan-U.S. Relations: A Briefing Book*. Report No. 90-233 F. Washington, Congressional Research Service, 1990. p. 13-14.

tax plan aims at small- and medium-sized companies which have been slow to increase manufactured imports.

The government increased funding for its 1990 import promotion program to approximately \$100 million, a seven-fold increase over funding for the previous year. This dramatically larger budget is financing the establishment of one "Local International Center" in each of the 47 prefectures in Japan. An on-line nationwide data network will disseminate information on Japanese importers and consumers on domestic-foreign price differentials, foreign products, after-sales service of foreign products and customs clearance procedures for imports. Funds will also be used to establish a data bank to match imports with potential customers, promote trade missions and increase the exchange of trade experts.²¹

The government has also expanded its import loan program. Five major public financing corporations (the Export-Import Bank of Japan, the Japan Development Bank, the Small Business Finance Corporation, the Peoples Finance Corporation, and the Japan Small Business Corporation) provide low-interest loans to finance import-related operations.

The net impact of these initiatives should be favorable for market access. It does not mean that all imports will benefit equally or that the bilateral imbalance will be reduced, but it appears clear that a boost will be given to some imports.²²

DEBATE OVER U.S. POLICY

Foreign firms should be able to sell in Japan's market more easily in the 1990s. But there are different views in the United States on what government should do to help further open Japan's market. Longstanding and deep-rooted differences exist between the executive branch and many in Congress concerning the basic elements of a U.S. market opening strategy. These differences include broad objectives to pursue, the government role in selecting specific targets, and the kind of pressures that should be brought to bear in opening Japan's market. The persistence of these differences is unlikely to prevent U.S. exporters from taking advantage of the changes that are occurring in Japan, but they could affect efforts to accelerate the market opening process and to maximize U.S. commercial benefits. These key differences are discussed below.

WHAT SHOULD THE PRIMARY U.S. MARKET OPENING OBJECTIVE BE?

At the broadest level, the issue is whether the primary U.S. objective should be improvements in market access per se through a reduction in Japanese trade barriers (both formal and informal) or increases in U.S. exports. Alternatively phrased, the debate is whether the United States places top priority on negotiating better rules or procedures that would improve access to Japan's market

²¹ Japanese Import Promotion Measures. *Business America*, April 9, 1990. p. 4.

²² Martin Feldstein, former Chairman of the Council of Economic Advisors, for example, has criticized the MITI import promotion initiative on the grounds that it will not reduce Japan's trade surplus. While the criticism may be valid, the plan nevertheless will improve access to Japan's market for imports. See *Wall Street Journal*, January 5, 1990. p. A6. For further analysis, see the chapter An Analysis of Japan's 1990 Import Expansion Measures, in this study.

for exports from all countries, or emphasizes outcomes and results that would more directly boost U.S. exports.

The traditional U.S. approach to opening Japan's market is "process-oriented" and has focused primarily on improving market access through the negotiation of better trade rules and procedures. This approach has assumed that reductions and modifications in trade barriers will lead to an increase in global trade flows and incomes. Even if exporters from third countries take most advantage of the openings negotiated by the United States, the United States still benefits indirectly as increases in third-country incomes stimulates demand for U.S. exports.

This approach has been pursued by both the Reagan and Bush Administrations. During the first term of the Reagan Administration, U.S. market opening negotiations focused on reducing Japan's generic trade barriers such as government procurement practices, product standards and certification, high tariffs, and customs procedures.²³ The SII negotiations initiated by the Bush Administration similarly focused primarily on improvements in market access through reductions in other generic barriers embedded in Japan's distribution system, business practices, and antitrust enforcement.

Critics argue that a process-oriented approach is insufficient and that opening Japan's market requires more than reducing trade barriers for two reasons. First, the case is made that Japanese protectionism is multi-dimensional and coordinated. Due to close government-business relations, it is argued that Japan has the capacity to protect industries informally even after it has eliminated visible trade barriers. As a result, some critics maintain that there never are any assurances that negotiated openings in Japan's market will lead to actual increases in trade flows.

Secondly, the Japanese are viewed by some as unlikely to change traditional practices and ways of doing business in order to accommodate Western notions of "openness" even after trade barriers are lifted. Open markets in the United States mean that buyers are perfectly justified in switching from long-term suppliers if new suppliers offer better products or a better price. In Japan, however, abandoning long-term suppliers for a better price is considered disloyal and unfair. Thus, according to Clyde Prestowitz, asking the Japanese to be more open is really like asking them to become more like us—which is something they are unlikely to accept.²⁴

The implication of both these critiques is that the primary objective of U.S. market opening negotiations with Japan should be more results-oriented. Both the Reagan and Bush Administrations, in fact, have conducted some negotiations that have tilted heavily towards a results orientation. For instance, the MOSS negotiations conducted during the Reagan Administration's second term targeted products and sectors of most interest to U.S. exporters. Similarly, the Bush Administration's 1989 Super 301 choice of supercomputers, satellites, and forest products as "priority practices" specifically were intended to increase U.S. exports to Japan as few coun-

²³ Cooper, William H. *U.S. Trade Policy Towards Japan: Where Do We Go From Here?* Report No. 89-307 E. Washington, Congressional Research Service, 1989, p. 7.

²⁴ Prestowitz, Clyde. Cited in Joint Economic Committee hearing, *Japan: Is the Market Open?* p. 4-5.

tries besides the United States have producers competitive in these industries.²⁵

Some proponents of making U.S. exports the primary objective in market-opening actions directed toward Japan go a step further and argue that explicit targets ought to be set. As proposed in a report submitted to U.S. Trade Representative Carla Hills from the 45 member, high-level private sector Advisory Committee for Trade Policy and Negotiations (ACTPN), the United States ought to set specific targets for Japanese imports from the United States, sector by sector. The targets or import levels would reflect the international competitiveness of U.S. suppliers in foreign markets and a sense of what the U.S. market share should be if the Japanese market were fully open.²⁶

This "results-oriented" negotiating approach is highly contentious. Critics argue that the approach is antithetical to free market principles and that it is inconsistent for a government of a capitalist economy to agree to command its private sector to buy a certain amount of steel, semiconductors or other products, particularly from designated suppliers.²⁷

A strong counterargument is made in cases where the Japanese government is pursuing industrial policy goals. According to Edward J. Lincoln, "these are the areas (such as fiber optics, supercomputers, superconductors, and new materials) where problems of overlapping and mutually reinforcing sets of restrictions on imports are likely to be the strongest, and where new restrictive policies continue to emerge when not aggressively challenged by foreign countries."²⁸ Under these circumstances, Lincoln argues that explicit targets may be required to achieve import increases in these sectors.²⁹

HOW SHOULD THE UNITED STATES ESTABLISH MARKET OPENING OBJECTIVES?

Closely related to what U.S. market-opening objectives should be is the question of how they should be established. Traditionally, the U.S. Government has initiated market-opening actions against foreign countries in response to private sector petitions. This reactive role for government is consistent with longstanding private sector suspicions and reservations about government making arbitrary decisions. Government trade policymakers have tended to favor a reactive government role, according to USTR official Geza Fekete-kuty, "for the simple reason that the effort required by a private party to document a foreign violation of a trade agreement was a useful filter for identifying high priority [trade barriers]."³⁰

²⁵ Ahearn, Raymond J., Richard Cronin, and Larry Storrs. *Super 301 Action Against Japan, Brazil and India: Rationale, Reaction, and Future Implications*. Report No. 90-25 F. Washington, Congressional Research Service, 1990.

²⁶ Advisory Committee for Trade Policy and Negotiations (ACTPN). *Analysis of the U.S.-Japan Trade Problem*. Report to the Office of the United States Trade Representative. Washington, February 1989. 122 p.

²⁷ Reifman, Alfred. *A Results Oriented Trade Policy*. Report No. 89-541 S. Washington, Congressional Research Service, 1989.

²⁸ Lincoln, *Japan's Unequal Trade*, p. 161.

²⁹ *Ibid.*, p.159.

³⁰ Fekete-kuty, Geza. *U.S. Policy On 301 and Super 301*. Washington, Office of the U.S. Trade Representative, November 30, 1989.

Critics argue that by using this reactive approach the U.S. Government does not designate for action foreign practices that most adversely affect U.S. exports. Instead, the best organized domestic interest groups or the best financed have their market access problems given priority attention. In the case of Japan, it is argued, this approach has squandered scarce U.S. political capital on opening up Japan's market for a number of products such as baseball bats and orange juice as opposed to products that entail more technological sophistication or higher skilled employment. In other instances, the U.S. Government has declined to pursue arguably good cases because the domestic industry was not united.

Through various revisions of U.S. trade law, Congress has attempted to promote a more activist government role in establishing market-opening priorities. The most recent congressional attempt was embodied in the Super 301 provision of the Omnibus Trade and Competitiveness Act of 1988. This provision, which was written with Japan in mind, required the executive branch in 1989 and 1990 to identify major foreign trade barriers that have a significant impact on U.S. exports and to initiate negotiations with the countries identified.³¹

The Bush Administration identified Japan as a "priority country" and its exclusionary procurement policies towards satellites and supercomputers and a variety of restrictions on forestry products as "priority practices" in the 1989 designation. The Administration also initiated a separate negotiation with Japan on underlying structural and cultural impediments that restrict access to Japan's market. The SII talks were held outside the Super 301 format of rigid timetables and retaliatory threats.

Citing major agreements reached under the 1989 Super 301 negotiations and related SII talks, the Bush Administration in May 1990 did not re-designate Japan as a "priority country" under the terms of the Super 301. The congressional reaction to this decision was mixed: some Members of Congress expressed approval; some approved with reservations, and others disapproved.

If, over time, the Super 301 agreements appear to generate only minimal commercial benefits to the United States, some in Congress may move to extend Super 301 and to require specific objectives.³² Legislation (S. 2569) that extends the Super 301 process through 1995 and further limits Presidential discretion in identifying market-opening priorities was introduced subsequent to the April 1990 "non-designation" of Japan.³³

HOW SHOULD THE UNITED STATES PRESSURE JAPAN TO OPEN UP ITS MARKET FURTHER?

There appears to be general agreement on the need to nudge Japan to liberalize and on the most effective ways to employ for-

³¹ Ahearn, Cronin, and Storrs. *Super 301 Action Against Japan, Brazil, and India: Rationale, Reaction, and Possible Future Implications*.

³² If the Super 301 agreements are seen to generate significant commercial benefits to the United States, the argument may also be made that Super 301 should be extended and strengthened on the grounds of keeping a good thing going.

³³ The bill, which was introduced by Senators Carl Levin, Donald Riegle, Arlen Specter, and Robert Byrd, would require automatic Super 301 reviews of any country maintaining a trade barrier that amounts to at least 5 percent of that country's trade surplus with the United States, thus ensuring a Super 301 review of the U.S. auto parts trade deficit with Japan.

eign pressure to do so. Foreign pressure tends to be most effective when (1) market opening objectives are clearly defined; (2) when there are Japanese interest groups lobbying for similar changes in Japanese policies; (3) when top level foreign political leaders are united over the seriousness of the issue; and (4) where time limits and sanctions are clear-cut.³⁴

There is, however, much less agreement on how often to press Japan strenuously because of the costs associated with more frequent threats and ultimatums. Constant U.S. pressures and public hectoring of Japan to open up specific markets can have negative commercial and political consequences. Constant U.S. complaints about Japan's trade barriers may project the image to Japanese consumers that American products are not very successful perhaps because there is something wrong with American products. Constant U.S. pressures also could create a nationalistic backlash in Japan. Trade disputes are front page news in Japan and tend to be portrayed in the imagery of war. As a result, trade pressures can contribute to growing popular perceptions that the United States is an enemy instead of an ally.

The Bush Administration's 1990 decision not to re-designate Japan as a "priority foreign country" under the Super 301 process in 1990, in part, reflected these concerns. Some in Congress, however, protested this decision, arguing that Japan tends to backslide and renege on market opening commitments without foreign pressure. Determining the appropriate occasions to apply pressure assiduously to Japan, thus, involves fine and often contentious judgment calls.

³⁴ See ACTPN report and summary by Robert G. Sutter of Government Decision-making in Japan: Implications for the United States. U.S. Congress. House. Committee on Foreign Affairs, March 16, 1982.

U.S.-JAPANESE ECONOMIC RELATIONS IN THE 1980S AND THE CHALLENGES THAT LIE AHEAD

By William H. Cooper ¹

CONTENTS

	Page
Summary	424
Introduction	425
Economic Relations in the 1980s.....	425
Bilateral Trade	425
The U.S. Trade Deficit.....	425
Market Access	427
Import Competition	429
Financial Ties	430
Japanese Investments in the United States	430
Yen-Dollar Relationship	432
The Challenges That Lie Ahead.....	433
Looking Forward	433
The Opportunities and Risks	435

SUMMARY

Economic relations with Japan were one of the most important policy issues for the United States in the 1980s. In the 1990s, as the military threat from the Soviet Union diminishes, the importance of U.S. foreign economic relations, especially with Japan, will likely increase. In looking ahead to the 1990s, it is useful to examine the trends in U.S.-Japanese economic relations and what opportunities and risks they present to the United States and Japan.

The U.S.-Japanese economic relationship is evolving. It is becoming broader. While trade continues to occupy a predominant part of the relationship, financial ties have become increasingly important. The United States and Japan are becoming more economically interdependent. Their importance to one another as trade partners has grown, and Japanese investments in the United States have increased the economic bonds between them. Furthermore, the relationship is becoming more complex. The economic issues that the two countries face become increasingly difficult to address.

Two sets of issues drive the U.S.-Japanese economic relationship. First are the macroeconomic issues—the trade deficit and investment flows. Second are the microeconomic issues—market access in Japan, and Japanese competition in specific sectors. The evidence suggests that the shape of the U.S.-Japanese economic relationship in the 1990s will be similar to that in the 1980s.

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The United States and Japan confront opportunities and risks in the economic relations in the 1990s. They greatly expanded trade and investment between them in 1980s to their benefit and to the benefit of the world as a whole. They have the opportunity to build on that success in the coming decade. But they also face the risks of more bilateral friction, the growth of protectionism, and of excessive preoccupation with their bilateral relationship possibly impairing ties with other partners and the multilateral economic system as a whole.

INTRODUCTION

Economic relations with Japan were one of the most important policy issues for the United States in the 1980s. During the past decade, Japan matured as a commercial and financial power, challenging the United States as an economic leader for the first time in the post-World War II era. The economic relationship between the United States and Japan in one sense became closer as the two economies grew more interdependent. In another sense, the economic ties became more fractious as differences over trade practices and economic policies generated frictions and misunderstandings that at times appeared to threaten the health of the postwar relationship.

In the 1990s, as the military threat from the Soviet Union diminishes, the importance of U.S. foreign economic relations, especially with Japan, will most likely continue to rise. In considering what the 1990s might hold for U.S.-Japan economic relations, it is useful to examine the past trends and what implications they might hold for the future.

ECONOMIC RELATIONS IN THE 1980s

BILATERAL TRADE

For much of the post-World War II period, the focal point of U.S.-Japanese economic relations has been the bilateral trade relationship and related issues. During the 1980s, tensions between the two countries over bilateral trade became especially acute. A rapidly increasing trade deficit with Japan, growing American intolerance of restrictive Japanese trade practices, and the expanding presence of Japanese imports in the U.S. market set the tone for the relationship for much of the decade. Japanese dependence on U.S. markets provided the United States with a degree of economic leverage that it used to obtain concessions on these issues.

The U.S. Trade Deficit

For a number of people, the trends in the U.S.-Japan trade balance became an indicator of the state of overall U.S.-Japanese relations. The growth in the U.S. trade deficit with Japan in the 1980s, therefore, came to signify a growing imbalance in Japan's favor. While the correctness of this view is highly debatable, the trade deficit persisted as a cloud over the entire bilateral relationship.

From 1980 to 1987, the annual trade deficit soared from \$10.2 billion to \$56.8 billion (table 1). At the same time, the overall U.S. trade deficit also rose, but much attention was placed on Japan be-

Table 1. U.S.-JAPAN TRADE, 1980-89

(Billions of dollars)

Year	U.S. Exports	U.S. Imports	U.S. Balance
1980.....	\$20.7	\$30.9	-\$10.2
1981.....	21.6	37.7	- 16.0
1982.....	20.7	37.7	- 17.1
1983.....	21.6	41.2	- 19.6
1984.....	23.2	57.1	- 34.0
1985.....	22.2	68.8	- 46.6
1986.....	26.6	81.9	- 55.3
1987.....	27.8	84.6	- 56.8
1988.....	37.4	89.8	- 52.4
1989.....	44.5	93.5	- 49.0

Source: U.S. Department of Commerce. Bureau of the Census. Exports are valued on a f.a.s. basis. Total imports are valued on a customs basis.

cause it held the largest bilateral trade deficit. The rapid appreciation of the dollar in terms of the yen and the other major foreign currencies, itself a symptom of a growing savings-investment imbalance in the United States, led to the deterioration in the U.S. trade balance.

At the end of the 1980s, the bilateral deficit with Japan declined largely because of a depreciating dollar. By 1989, it stood at \$49 billion. The depreciation of the dollar made U.S. exports more competitive in Japan. Between 1985 and 1989, the value of U.S. exports to Japan almost doubled. However, U.S. imports from Japan continued to increase (albeit somewhat more slowly than U.S. exports). The U.S. trade deficit with Japan declined more slowly than the trade deficits with the European Community and some of the other trading partners, underscoring the continuing macroeconomic imbalances between the two countries. By 1989, the bilateral trade deficit with Japan accounted for about 50 percent of the total U.S. trade deficit, making it a continuing irritant in the relationship. The dollar, which had been declining in terms of the yen through 1988, was climbing in 1989 and into 1990, making a worsening U.S. deficit with Japan a likely possibility.

The United States and Japan are becoming more dependent on each other in trade. The United States has long been Japan's most important trade partner and is becoming more so. In 1989, the United States accounted for 34 percent of Japanese exports, an increase from 24 percent in 1980 (table 2).² Japanese manufacturers of consumer goods, automobiles, and other products rely heavily on U.S. markets. The U.S. share of Japanese imports grew from 17 percent to 23 percent during the same period. Imports of American agricultural products are a significant source of food products for Japan.

At the same time, Japan's importance in U.S. trade has grown. Japan is the largest market for U.S. agricultural exports and the second largest market for U.S. exports overall. In 1980, 9 percent of U.S. exports went to Japan; 12 percent in 1989 (table 3). Japan was the second largest source of U.S. imports in 1980, with a 13 percent

² CRS calculations based on data in International Monetary Fund. *Direction of Trade Statistics*. Washington, 1990 various issues.

Table 2. U.S. SHARE OF JAPANESE EXPORTS AND IMPORTS, 1980-89

(Percentage of total)

	Japanese Exports	Japanese Imports
1980.....	24.5	17.4
1981.....	25.7	17.7
1983.....	26.4	18.4
1984.....	29.5	19.6
1985.....	35.6	19.8
1986.....	37.8	20.0
1987.....	38.9	23.0
1988.....	34.0	22.6
1989.....	34.2	23.0

Source: CRS calculations based on data in International Monetary Fund, *Direction of Trade Statistics*, Various Issues.

share but eventually replaced Canada to become the largest source, with a 20 percent share of U.S. imports in 1989.³

Table 3. JAPAN'S SHARE OF U.S. EXPORTS AND IMPORTS, 1980-89

(Percentages of total)

	U.S. Exports	U.S. Imports
1980.....	9.2	12.8
1981.....	9.1	14.4
1982.....	9.5	15.5
1983.....	10.5	16.0
1984.....	10.4	17.5
1985.....	10.1	19.9
1986.....	11.7	22.1
1987.....	11.0	20.8
1988.....	11.6	20.4
1989.....	12.3	19.8

Source: U.S. Department of Commerce, Bureau of the Census, Trade Net Data Retrieval System.

Market Access

Problems associated with Japanese barriers to imports have been another major irritant in U.S.-Japanese economic relations during the past decade. As Japan's trade surplus with the United States rose and Japanese industry became more competitive, the United States grew less tolerant of protectionist policies that helped drive Japanese postwar industrialization. The United States pressured Japan to remove trade barriers and provide a "level playing field" on which U.S. firms could compete with Japanese. In the 1970s, U.S. complaints centered around high Japanese tariffs and import quotas. By the beginning of the 1980s, Japan had lowered its tariffs to levels at or below the tariffs of the other industrialized countries and had removed import quotas on most products.

In the 1980s, the emphasis of U.S. trade policy shifted to less overt trade barriers—Japanese government regulations, policies, and practices. These "informal" barriers included government administrative guidance, products standards, customs clearance pro-

³ CRS calculations based on data from the U.S. Department of Commerce, Bureau of the Census. The data were obtained from the TradeNet data system.

cedures, and procurement practices that can be structured or implemented to favor Japanese producers. They also included private business and consumer practices, such as business conglomerates, exclusionary buying practices, predatory pricing practices, and the distribution system, that limit foreign penetration into Japanese markets.

In the mid-1980s, the United States and Japan launched the Market-Oriented Sector-Selective (MOSS) talks, a comprehensive series of negotiations to address "informal" barriers in specific product sectors. The initial series covered four areas—telecommunications, medical equipment and pharmaceuticals, forestry products, and electronics. The two countries later added auto parts to the talks. The United States selected sectors in which American firms were competitive and which offered significant export potential. By the end of March 1987, the United States and Japan had reached agreements in all of the MOSS sectors. U.S. exports to Japan in each sector except auto parts increased. However, other factors, such as the depreciating dollar, probably played as much or more of a role than the MOSS agreements in boosting exports.⁴

The United States pursued market access in Japan outside the MOSS process as well. After sometimes long and tedious negotiations, Japan agreed to take some measures to liberalize its markets in the construction industry, in agriculture, and in tobacco products, among other areas.

One of the most contentious issues in the 1980s arose over semiconductor trade. In July 1986, the United States reached an agreement with Japan on semiconductor trade in response to cases brought by American semiconductor producers against Japanese dumping in the United States and in third-country markets and against Japanese barriers to U.S. semiconductor exports. Japan agreed to promote the growth of the U.S. share of the Japanese market in semiconductor devices and to work towards eliminating dumping.

However, in April 1987, the Reagan Administration determined that Japanese firms continued to dump in third countries and that the U.S. share of the Japanese semiconductor market had not increased. Accordingly, it imposed 100 percent tariffs on selected imports of Japanese electronic products with an estimated value of \$300 million. The Administration subsequently determined that Japanese dumping had ceased but that the U.S. market share in Japan still had not attained desirable levels. It reduced the sanctions to imports valued at \$165 million. The Bush Administration has retained the sanctions.

In the last two years of the 1980s, the U.S. trade negotiating strategy shifted. In 1988, the Congress passed the Omnibus Trade and Competitiveness Act (P.L. 100-418). Several provisions of the Act mandate executive branch action in pursuing market liberalization. The most controversial provision has been "Super 301" (Section 1302) that required the U.S. Trade Representative (USTR) to identify, in May 1989 and April 1990, those countries that are

⁴ U.S. General Accounting Office. *U.S.-Japan Trade: Evaluation of the Market-Oriented Sector-Selective Talks; Report to the Honorable Lloyd M. Bentsen, U.S. Senate*. GAO/NSIAD-880205, July 1988. Washington, 1988. p. 13.

egregious practitioners of "priority" unfair trade practices. Japan was not specifically named as a target in the statute, but authors of the provision indicated that they expected the USTR to use Super 301 against Japan.⁵

In May 1989, USTR Carla Hills named Japan under Super 301, citing its government procurement policies that have, according to Hills, discriminated against American made satellites and supercomputers, and Japanese technical and trade barriers that discriminated against imports of U.S. wood products. Through "Super 301" and other provisions of the Omnibus Trade Act, the Congress increased pressure on both the Administration and Japan to resolve market access issues. USTR Hills did not identify Japan in the second round of Super 301 identification in April 1990. The final report was due to be released in July 1990.

The Bush Administration shifted strategies on market access as well. In May 1989, it initiated the Structural Impediments Initiative (SII). SII was a series of discussions on structural elements of the U.S. and Japanese economies often cited as impediments to trade and investments. The SII was an effort by the Administration to address some of the root causes of the trade deficit with Japan. It can also be viewed as an Administration attempt to regain some of the control over trade policy that the Congress had taken with the passage of the Omnibus Trade Act.

In the SII, the United States identified six areas as Japanese structural barriers: the high savings rate, the *keiretsu* and similar business conglomerates, land-use policies that have led to high land prices in Japan, the lack of Japanese government enforcement of antimonopoly statutes that have allowed anticompetitive business practices to flourish, the distribution system, and pricing policies. Before participating in the SII, Japan insisted that American structural barriers be addressed as well and cited seven: the low U.S. savings rate, inadequate business investment, short-term corporate outlook, U.S. antitrust laws, inadequate R&D spending, inadequate export promotion, and inadequate worker training. The SII talks continued into 1990. In June 1990, the United States and Japan released a final joint report on the SII in which each country outlined measures that it would take or proposed to take to address their structural impediments.

The initiation of the SII broadened the scope of market access negotiations on unfair trade practices in Japan from government practices to structural elements that constitute fundamental differences between U.S. and Japanese economies. In addition, for the first time, U.S. trade barriers were part of the negotiating agenda. But the SII also has signified the growing complexity of the U.S.-Japanese economic issues as disputes now involve fundamental differences in economic structures as well as government policies.

Import Competition

Japan emerged from decades of postwar rebuilding to become a major industrial power. Supported by Japanese government programs that fostered industrial growth and a liberalized trading en-

⁵ *International Trade Reporter*, v. 6, March 8, 1989, p. 288.

vironment, Japanese producers have become strong competitors to Americans in many areas. Imports from Japan in the last two decades have competed alongside, and in some cases replaced, American-made products in the U.S. domestic market.

In the early 1980s, competition from imports from Japan became acute because of the appreciating dollar for U.S. industries that were already experiencing the effects of recession. In response to pressure from hard-hit industries and from some Members of Congress, the Reagan Administration negotiated "voluntary restraint agreements" (VRAs) with Japan under which Japan agreed to restrict exports of particular products. In exchange, the United States imposed no other import restrictions on those goods.

At the beginning of the 1980s, Japan agreed to limit exports of autos after pressure from the U.S. auto industry, the labor movement, and some Members of Congress threatened to impose domestic content or other restrictions on sales of Japanese cars. By the end of the 1980s, the U.S. and Japan had VRAs in place on autos, machine tools, and steel.⁶

FINANCIAL TIES

While bilateral trade occupied the center of the U.S.-Japanese economic relations for most of the 1980s, financial ties grew and became an important element of the relationship. This was attributable in part to the growth of Japan's financial strength.

In the 1980s, Japan accumulated a huge capital surplus. A part of the surplus resulted from the trade surpluses Japan accumulated over the years, particularly with the United States. A part resulted from a high domestic savings rate coupled with restrictive government fiscal policies.⁷ Japan's surplus buildup occurred at roughly the same time that growing U.S. Federal budget deficits and a low savings rate made the United States capital short. The resulting high real interest rates in the United States attracted Japanese capital. Japan has returned some of the surplus back to the United States in the form of direct investments and portfolio investments, strengthening financial ties between the two countries.

Japanese Investments in the United States

Japanese direct investments, that is, ownership of U.S.-based businesses and real estate, soared in the 1980s (table 4). From 1981 to 1988, Japan's net direct investment position in the United States grew from \$7.7 billion to \$53.4 billion.

Japanese investments in manufacturing facilities, wholesale trade establishments, and real estate led the surge.⁸ In its early stages, Japanese direct investments consisted mostly of the establishment of new wholesale facilities for Japanese made products and, later, of offshore production plants for Japanese consumer

⁶ Japan has maintained the VRA on auto exports, although the United States has not officially insisted on it.

⁷ U.S. Library of Congress. Congressional Research Service. *Japan's Capital Surplus: Its Origins and Uses*. Report No. 90-165 E, by James K. Jackson. Washington, 1990. p. 4-6. (Hereinafter referred to as Jackson, *Japan's Capital Surplus*.)

⁸ *Ibid.*, p. 32

Table 4. JAPAN'S DIRECT INVESTMENT POSITION IN THE UNITED STATES, 1981-88

(Billions of dollars)

1981.....	7.7	1985.....	19.3
1982.....	9.7	1986.....	26.8
1983.....	11.3	1987.....	35.2
1984.....	16.0	1988.....	53.4

Source: Data are from U.S. Department of Commerce, Bureau of Economic Analysis. Reproduced in U.S. Library of Congress, Congressional Research Service, *Japanese Investment in the United States*, Report No. 90-13 E, by James K. Jackson. Washington, 1990. p. 16.

electronics and autos. By the end of the 1980s, a large portion of Japanese direct investments were acquisitions of established U.S. companies and real estate.⁹

Foreign direct investments have proved a boon to some industrial sectors and regions of the United States. Japanese firms in the United States have generated employment and have provided a source of know-how and capital to U.S. industry. Many State governments have been promoting Japanese investment. Thirty-three States have offices in Tokyo for that purpose.¹⁰

But Japanese direct investments have also been controversial. Japanese acquisitions of highly visible assets such as the Rockefeller Center, Columbia Pictures, and 7-Eleven have fed a perception that Japan is "buying up America." Japanese investments in U.S. high-technology firms have raised concern about the threat to national security. In 1987, for example, Fujitsu Ltd. planned to buy the U.S.-based Fairchild Semiconductor Corp. from the French firm Schlumberger Ltd. Fujitsu withdrew its plan in the face of strong opposition from the Department of Defense, the Commerce Department, and the Central Intelligence Agency.¹¹

The rapid increase in Japanese direct investments set off a policy debate on the costs and benefits of foreign investment, especially Japanese investment, and the adequacy of U.S. data collection. A similar debate had emerged in the 1970s over skyrocketing investments in the United States by the Middle Eastern oil-exporting countries who were recycling oil profits. As a result of the debate, the Congress passed the Exon-Florio Amendment of the Omnibus Trade and Competitiveness Act of 1988.¹² The provision authorizes the President to block foreign investments that are a threat to the national security. During the late 1980s, legislation was proposed, but not passed, to expand the U.S. Government's authority to collect foreign direct investment data and to require reciprocal treatment of U.S. investments abroad.

The largest portion of Japanese investments in the United States has been in portfolio investments—U.S. Treasury securities, corporate stocks and bonds, and bank deposits. Japanese investments have helped fill the U.S. need for investment capital caused by U.S. dissavings and thus have dampened U.S. interest rates. Japanese

⁹ Ibid., p. 5-6.

¹⁰ Jackson, James K. *Japanese Investment in the United States*. CRS Review, July 1989. p. 12.

¹¹ Jackson, *Japanese Investment in the United States*, p. 27.

¹² Public Law 100-418, Title V, Subtitle A, Part II. For a discussion of Exon-Florio see Ibid. p. 27-28.

investments in U.S. Treasury securities have helped directly to finance the Federal budget deficit. But the rapid surge in portfolio investments has raised questions about the rise of Japanese influence in U.S. financial markets and the possibility and potential effects of a sudden withdrawals by Japanese investors.¹³

The rapid growth of Japanese investments in the United States in the 1980s has tightened the economic bonds between the two countries. The United States is the largest single location of Japanese foreign direct investment, accounting for almost 40 percent in 1988.¹⁴ At the same time, Japan has become the second largest source (behind the United Kingdom) of foreign direct investment in the United States. In addition, Japanese investors are the largest holders of foreign-held U.S. Federal debt and the largest holders overall of foreign portfolio investments in the United States.¹⁵

Yen-Dollar Relationship

In the early to mid-1980s, the value of the dollar on foreign exchange markets rose rapidly in terms of the other major currencies, especially the yen. The strong dollar put upward pressure on U.S. export prices and downward pressure on U.S. import prices and was, therefore, largely responsible for the rapid deterioration in U.S. trade balances.

The United States asserted early in the 1980s that Japanese government capital controls dampened the value of the yen and, therefore, raised the value of the dollar. The United States pressed Japan to liberalize its financial markets in order to allow more foreign participation and expand the use of the yen. In May 1984, after months of negotiations, the two sides produced an accord in which Japan agreed to take market-liberalizing measures—the introduction of a broad range of financial assets, the development of a more active Euroyen market, and greater participation of foreign institutions in Japanese financial activities.¹⁶ The yen/dollar accord signified the importance that U.S. and Japanese policymakers were now giving to the role played by exchange rates in trade flows and the steps they were willing to take for joint action.

The dollar continued to rise against the yen after the accord was signed and continued to rise against the other major currencies. These trends reflected the strong demand for the dollar as a result of large flows of foreign capital into the United States. In February 1985, the dollar began to decline.

The United States and Japan together with Germany, France, and the United Kingdom, the so-called G-5 countries, began to work together on policies relating to exchange rates. In September 1985, the finance ministers of the G-5 countries met at the Plaza Hotel in New York where they agreed on measures to lower the

¹³ For more discussion of these issues see U.S. Library of Congress. Congressional Research Service. *Japanese Investment in the U.S.: Potential for a Financial Crisis?* Report No. 90-86 E, by James K. Jackson. Washington, 1990. 23 p. (Hereinafter referred to as Jackson, *Japanese Potential*.)

¹⁴ This figure is based on Japanese Ministry of Finance data reprinted in Jackson, *Japan's Capital Surplus*, p. 19.

¹⁵ Jackson, *Japanese Potential*, p. 12-13.

¹⁶ U.S. Library of Congress. Congressional Research Service. *The Internationalization of the Yen*. Report No. 84-722 E, by Arlene Wilson. Washington, 1984. p. 4.

dollar's value. Since the "Plaza Accord," the United States and Japan along with the other G-5 countries and later G-7 (including Italy and Canada) have worked towards coordinating multilateral action on exchange rates.¹⁷

THE CHALLENGES THAT LIE AHEAD

The U.S.-Japanese economic relationship is evolving. It is becoming broader, covering a wider range of economic areas. The United States and Japan are becoming economically more interdependent as they rely on one another increasingly as trade and investment partners. And the relationship is becoming more complex—the problems that the two face are becoming more difficult to resolve. If these trends prevail, they will help to shape the relationship in the 1990s and the challenges that the United States and Japan will face.

LOOKING FORWARD

The examination of U.S.-Japanese economic ties in the 1980s indicates that two fundamentally different types of issues drive the relationship. One type is macroeconomic—the trade and investment flows that have led to the U.S. trade deficit with Japan and the surge in Japanese investments in the United States.

A strong consensus exists among mainstream economists that the merchandise trade and current account imbalances are manifestations of the savings-investment imbalances in the United States and Japan. These imbalances have been exacerbated when U.S. Federal deficit spending increased sharply and, coupled with a traditionally low domestic savings rate, made the United States capital short. At the same time, the Japanese government had tightened up its spending. This, coupled with a traditionally high private savings rate, gave Japan a capital surplus. The differences between the two countries have been manifested in capital flows from Japan to the United States that drove up the value of the dollar and exacerbated U.S. trade deficits with Japan.

The second set of issues are microeconomic, that is, issues that pertain to specific sectors or products—market access for U.S. exports in Japan, and Japanese competitiveness in specific product areas. Many analysts attribute these issues to government policies and structural elements of the two economies—tariffs and nontariff trade barriers, government industrial policies that target sectors for special treatment, cultural biases, product quality, government regulations, and business practices, among others.

The outlook for U.S.-Japanese economic relations, therefore, depends on these two sets of factors. The analysis suggests two basic scenarios. One is of little or no change. Under these conditions, one would expect that the picture for the 1990s will look much like that in the 1980s perhaps with some differences in degree. The United States would still incur trade deficits with Japan, and net

¹⁷ U.S. Library of Congress. Congressional Research Service. *Exchange Rates: The Dollar in International Markets*. Issue Brief No. IB78033, by Arlene Wilson, (Archived). Washington, 1989. p. 9.

flows of Japanese capital into the United States would exceed net flows of U.S. capital into Japan.

The second would be of significant reductions in the savings-investment balances in the United States and Japan and significant changes in the government policies and structural elements. Under these conditions, one would expect a major reduction, if not elimination, in the trade imbalances, the market access problems, and other sector-specific issues that have generated economic frictions between the two countries.

To many, the evidence to date suggests that, while the underlying conditions of the U.S.-Japanese economic relationship are changing somewhat, the shape of the relationship will likely remain about the same. On the U.S. side, the Federal Government continues to grapple with its budget deficit, a major contributor to U.S. net dissavings, but the indicators are that it will be a difficult one to solve in the near-term. Moreover, although some improvement may occur, it is unlikely that the U.S. domestic savings rate will change appreciably in the near-term to reduce U.S. reliance on foreign capital.

On the Japanese side, while its government has increased public spending during the last few years, Japan still saves more than it invests. Current trends indicate that during the next decade, Japan will likely remain a net saver.¹⁸

Indeed, it is debatable whether a lower Japanese savings rate is in the U.S. interest. If the United States remains a net dissaver, Japanese capital surplus could help to finance excess spending and dampen U.S. interest rates, all other factors being equal.

Regarding changes in government policies, structural elements, and other microeconomic factors, the evidence points to a continuation of the pattern of the 1980s. The United States and Japan have made progress in lowering tariffs, nontariff barriers, and some of the less visible obstacles to trade. Nevertheless, a growing body of economists is producing compelling evidence that the structural differences between the U.S. and Japanese economies are deeply rooted and, therefore, resistant to rapid changes. These economists have examined Japanese foreign trade patterns over a number of years and have concluded that Japan is less open to imports than other industrialized countries. They show, for example, that Japan has exhibited much lower concentrations of intra-industry trade than one would expect for an advanced-industrialized country.¹⁹

Given the above prognosis, it seems that issues related to economic relations with Japan will occupy an important place on U.S. policymakers' agenda for the foreseeable future. Policymakers will have to contend with frictions that arise over differences in macroeconomic factors, primarily trade imbalances, and the pressures that arise on specific sectors from structural differences.

¹⁸ Elwell, Craig. Behind the Bilateral Trade Deficit. In: *Japan-U.S. Economic Issues: Investment, Saving, Technology and Attitudes*. Report No. 90-78 E, coordinated by Dick K. Nanto. Washington, Congressional Research Service, 1990. p. 84.

¹⁹ See, for example, Lincoln, Edward J. *Japan's Unequal Trade*. Washington, The Brookings Institution, 1990. p. 59.

THE OPPORTUNITIES AND RISKS

As their economic relationship continues to evolve in the 1990s, the United States and Japan face opportunities to strengthen their relations with positive effects for them as well as the world as a whole. But they also face potential pitfalls that could undermine their bilateral relationship with troubling implications.

In the 1980s, the United States and Japan have had to grapple with difficult issues. These issues have largely pertained to opening borders to trade and investment. While the jury is still out on the ultimate effects of the agreements reached so far by the two countries, one can argue that bilateral economic relations are more open than was the case in 1980. From an economic point of view, more open trade and investment have created opportunities for consumers, producers and investors of each country and thereby improved the welfare of both. They have also created opportunities for producers and investors from third countries adding to the general welfare of the world as a whole. In so doing, the United States and Japan have helped to promote the objectives underlying the multilateral trading system embedded in the General Agreement on Tariffs and Trade, the GATT. As their relationship continues to broaden and become more interdependent in the 1990s, the United States and Japan have the opportunity to build on this experience.

However, in the 1990s, the United States and Japan face risks. One risk is the potential increase in bilateral friction that endangers an otherwise healthy relationship. If present trends continue, the U.S. trade deficit with Japan will remain a source of tension at least for the next few years. U.S.-Japanese commercial competition could intensify and widen into other fields providing fertile ground for friction. And the increased complexity of the economic issues that the United States and Japan confront also looms as a source of friction.

A second risk is potential net economic losses from the growth of trade and investment protectionism in both countries. As barriers are brought down and competition intensifies among countries, certain economic groups are adversely affected. These groups seek governmental protection from foreign competition. In the United States, the automobile, textile, and machine-tool industries have been vocal. In Japan, farmers and agricultural associations have been have opposed market liberalization in their sectors. Protectionism can benefit those groups for which it is implemented. But society as a whole generally bears the costs of inefficiency in higher costs for protected products and services.

Excessive preoccupation with their bilateral economic relations to the detriment of other relationships is another risk that the United States and Japan face. In the 1980s, both countries expended much time, energy, and political capital on the trade imbalance, trade barriers and other bilateral issues. This has raised concern among other countries that the United States and Japan may be developing special arrangements at the expense of their relations with third countries. Furthermore, some observers have speculated that excessive focus on bilateral relations will undermine the U.S. and Japanese commitment to the GATT, especially at a time when

members are dealing with sensitive issues in the expansion of the GATT framework.

Japan's enhanced economic power implies that it is likely to take an increasingly independent policy stance in world economic and strategic affairs. The era when Japan almost automatically supported U.S. policy positions is ending as Japan assumes the number two position at the International Monetary Fund, pours aid money into developing countries previously dependent on U.S. assistance, and becomes the world's largest creditor nation. Some perceive a risk that U.S. pressure on Japan could generate a response hostile to American interests and detrimental to both bilateral and world relationships. Some elements in Japan, for example, espouse the use of Japan's financial power or technical prowess to counter U.S. pressures.

U.S. TRADE FRICTION WITH JAPAN

By Alan Wm. Wolff ¹

CONTENTS

	Page
Summary	437
Introduction	438
Not Causes of the Friction	438
Causes of the Friction	438
Trade Imbalance	438
Arrogance	440
Current Efforts	441
Japan's Goals	442

SUMMARY

The friction in U.S.-Japan trade relations has several underlying causes. It is not caused, however, by Japanophobia or racism. The cause also is not that there are so many Japanese things that Americans want to buy, but so few American things that Japanese want to buy.

One real cause of the friction is the bilateral trade imbalance and its intractability despite the depreciation of the dollar. The problem does not lie in the size of the trade balance as much as in its composition. Japan tends not to import products that it exports. There is a lack of intra-industry trade.

Relations are further troubled by the arrogance in each side's approach to the other. Japanese lecture Americans that they should try harder, while Americans try to remake Japan in their own image. Each tries to change the other. The alternative, however, leads to managed trade along the lines of the Europeans.

Despite the energies being deployed by both governments to diminish the sources of friction, current efforts are insufficient. Managed trade proposals also could have undesirable results in which quantifiable goals were reached in ways that were not in the best interest of the United States. The solution depends a great deal on Japanese corporate behavior and their willingness to buy foreign products. In certain circumstances where the market is not operating fully, there needs to be a results-oriented policy.

The fundamental question is what Japan's vision is of its own role as a major world power. Japan has had a single-minded goal of

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developing a manufacturing export base. If it continues to do so as a world leader, it will create a far different world than the one which America envisages as ideal.

INTRODUCTION

Japan-U.S. trade relations are characterized by considerable friction. The irritation on the American side is very real and is being manifested in a variety of ways.

A public opinion poll taken in the United States in 1989 indicates that 68 percent of Americans feel that the economic power of Japan is a greater threat than the military power of the Soviet Union. That is a political fact. Whether people in the United States should feel that way or not is a separate matter, but the problem exists.

If asked what is the country with which the United States has the greatest trade problem, scarcely any American politician, businessman, or member of a trade association or trade union would not respond that it was Japan. Such perceptions are not healthy for the bilateral relationship, either in the long-term, medium-term, or even the short-term. This must be changed.

NOT CAUSES OF THE FRICTION

The feeling of irritation by Americans toward Japan has clearly identifiable causes. But first let me elucidate what are *not* the clearly identifiable causes. The cause of the problem is not Japanophobia. It is not racism. Americans have many friends in Japan and hold friendly feelings toward Japan and the Japanese people. We have enormous admiration for what the Japanese have accomplished through ingenuity, hard work, and design skills.

Even with this admiration for some things Japanese, however, it is also worth noting that the cause of our difficulties is not that there are so many Japanese things that Americans want to buy, but so few American things that Japanese want to buy. Such a claim is a bit of factually inaccurate scapegoating that many of the spokespersons for the Japanese side tend to note.

The United States makes many world class products that Japanese could buy. The United States has some of the best supercomputers in the world. Likewise, the United States sells some of the best satellites, microprocessors, jet fighters, Chrysler Jeeps, minivans, wood products, and automobile parts. There is a vast and rich array of some of the most competitive products in the world in the United States that do not find a home in the Japanese market. The U.S. experience is also not unique. The Taiwanese and South Koreans could compile a similar list of their competitive products that have a problem entering Japan.

CAUSES OF THE FRICTION

TRADE IMBALANCE

Turning to the actual causes of the feeling of irritation on the part of Americans, one clear cause, whether it should be or not, is the trade imbalance. Over the past decade, when one country sells to another some \$400 billion dollars more than it buys from that

country, that gives rise to some degree of irritation. This is particularly the case given the *laissez faire* philosophy that dominates the U.S. Government and the attempts to keep the U.S. market open and free. There is an underlying perception that Japan has taken advantage of the U.S. market. While this is not considered to be a provocation, it is a political fact.

Part of the problem is that the bilateral trade deficit appears to be intractable, even though there has been some improvement in the figures during the last half of the 1980s. Certainly the exchange rate adjustment beginning in 1985 that decreased the value of the dollar did more for the United States in terms of its trade with Europe than with Japan. The United States now has a surplus in its trade with Europe, while the deficit with Japan appears to be stuck at around \$50 billion. The fact that exchange rate changes do not work as well with Japan as they might, however, should not give rise to antipathy toward that nation.

Macroeconomists point to a number of domestic policies on both sides that partially explain the size of each country's global external imbalance. Certainly, differences in saving rates and government budget deficits affect overall trade performance. Hence, the macroeconomists make their arguments with some justification. I would suggest, however, that the problem does not lie in the size of the trade balance, but in its composition.

Much of world trade is intercompany. One company buys inputs from another. Another sizable part of world trade is intracompany. A subsidiary buys from its parent company, or vice versa. The problem is that the United States does not have a large manufacturing presence in Japan which draws in imports from the American market, nor do firms of other countries.

Furthermore, most countries, even if they excel at producing certain products, import the same kinds of products which they export. There is intra-industry trade. In Germany, for example, there has never been a question of the ability of foreign companies to sell or make products, such as automobiles or machinery, in that economy, even though Germany has a chronic trade surplus in those products with the world and with many individual countries, including the United States.

There is a pattern of adversarial trade, as Peter Drucker has called it, if a nation does not buy what it makes itself and engages in very concentrated export drives. This brings us closer to identifying the trade problem with Japan.

If the cause of this lack of intra-industry trade by Japan were only that Japanese firms are organized somewhat differently from those in the United States, the problem still would not be solved. There are *keiretsu* or industrial groupings in Japan who naturally buy from affiliated firms. Similar *keiretsu* groups are rare in the United States. It is true that large firms prefer to buy internally first, then from other related firms, then from nationals, and finally from foreign suppliers. This holds true, however, to a greater degree in Japan than it does anywhere else in the world.

The fact that the existence of the *keiretsu* is an explanation of why Japanese firms behave as they do does not make their reluctance to buy from foreign suppliers any more acceptable to American business. For an American manufacturer of components, the

prospect is that one might never become accepted in Japan, the second largest national market in the world, except as a residual supplier. That has profoundly negative economic consequences for particular sectors in the United States and for individual firms.

The Japanese market has been found to be difficult to penetrate. The specific complaints against Japanese trade barriers are numerous indeed. This is the fundamental reason for the animosity that one can find within the U.S. business community and in political circles toward Japan.

The Japanese side has done much to explain why the barriers exist. But whether the barriers stem from anticompetitive business practices, from dampening of demand through fiscal policies, from the lack of patent protection, the distribution system, the high price of land, the inability of most Japanese to afford housing on a scale that per capita income would suggest, or whether they are due to Japan's agricultural policies, knowing about the causes does not accomplish much.

The problem is not a lack of information and understanding on the part of Americans or as the Japanese call it, a perception gap. The problem is that the Japanese pattern of trade causes damage to industries in countries with which Japan trades, if those countries allow this pattern of trade to persist.

Take the case of automobiles. Over the eight-year period, 1980-88, Japan exported 55 million autos and other vehicles and imported 600,000. A sizable proportion of these vehicles were shipped to the United States. What was the effect of that trade pattern on South Korea? In the first third of 1989, Korea shipped 7 Hyundai cars to Japan, while the United States took in well over 300,000. Canada took in a somewhat similar figure.

The semiconductor story is quite well known. What is the effect of the U.S. industry only being able to sell 1 percent of Japanese consumption of chips used in automobiles, although the U.S. industry has demonstrated its competitiveness in every other market of the world? It has some 70 percent of the U.S. market and holds a similar position in the European market.

ARROGANCE

The second point dealing with the bilateral irritation over trade is that relations which would be troubled enough by these factual bases for trade friction are further troubled by the arrogance which is increasingly characterizing each side's approach to the other. On the Japanese side it is manifested in lectures to Americans that they should try harder and in a variety of other ways. On the American side it is the desire to remake Japan in their own image. Americans feel they know, and they believe their views are reinforced by recent events in Eastern Europe, that they have the one method of organizing an economy that works.

Even though I consider this position arrogant, it does not mean that I do not, to some extent, share it. The alternatives lead to about where the managed trade advocates stand. Either the Japanese become more like Americans, or Americans become more like the Japanese, or both countries become more like the Europeans. In the last case, trade will become more managed, because Japa-

nese firms do not sell freely into Europe, particularly in the main sectors such as automobiles and consumer electronics. Europeans place limits on export surges from Japan. That is the alternative to the arrogant position. Either Japan has to change, or the United States has to change, or the United States suffers significant harm to certain of its sectors.

CURRENT EFFORTS

A third point with respect to the irritation in the relationship with Japan is that significant energies are being deployed by both the Japanese and U.S. Governments to diminish the sources of friction, but the current efforts are insufficient. The Japanese government has adopted policies that make economic expansion less dependent on export-led growth and has shifted to domestic demand. The two governments have been engaged in a series of talks on trade barriers, which the United States styles as Super 301 but Japan prefers not to, and on structural impediments which not only are not going to be a cure-all but will not even be a cure for the items under discussion. That does not mean that these bilateral trade talks are not inevitable.

Some proponents of managed trade say that the United States should demand quantifiable results from Japan in trade negotiations with the threat of cutting off access to the U.S. market if those results are not forthcoming. The problem I have with the proponents of managed trade is that the United States does not want to go to war with Japan in an economic sense. Therefore, the United States has to try to explore other solutions.

Simply to say to Japan, as the proponents of managed trade have suggested, that its ratio of manufactured imports to all imports has to increase over a certain period of time is not sufficient without thinking about how that would occur. Such a quantitative target could be reached in ways which would not be acceptable in terms of the U.S. national interest or from the point of view of other trading partners with which Japan deals. Would the United States want Japan to increase its ratio of manufactured goods imports by reducing its imports of agricultural products?

In Japan, the steps taken to open markets are supplemented by guidance from the Ministry of International Trade and Industry to the largest Japanese exporting companies to reduce their individual trade imbalances. They have responded by dispersing their manufacturing base to offshore export platforms in Southeast Asia as well as in end-market sites, such as the United States. Such actions also do not seem to be a fundamental solution. The U.S. trade deficit with Japan could diminish, but the trade problem with Japan would not.

The solution depends a great deal on Japanese corporate behavior. The Japanese currently see their corporate problem with respect to the United States as one of treatment of women and minorities, giving to charity, and generally being good corporate citizens in host countries. That, however, is not the behavior at the root of the trade problem. The pertinent question is whether Japanese corporations play by the same rules as others or whether they see themselves as something of a club. If there is a club that tends

to be exclusive and divides up the Japanese market while operating aggressively abroad, then there is a problem.

Progress has been made in terms of increases in Japanese manufactured goods imports, particularly from the newly industrializing countries, albeit from a very low base. The question is one of pace. Will liberalization take place quickly enough to dampen calls abroad for special measures?

In the United States, where debates are characterized by seeing issues in terms of opposite extremes, the question has been framed as whether free trade or managed trade is the appropriate policy for Japan. In my view, a *laissez faire*, open market seems to be the appropriate goal. But in certain circumstances where the market is not operating fully, there needs to be a results-oriented policy. The United States can ill afford anything else.

JAPAN'S GOALS

A final point is one that should, in a broader sense, be of the most concern to all Americans. The fundamental question is what Japan's vision is of its own role in the coming decade. There can be no doubt that Japan will have a much enhanced role. U.S. Secretary of State James Baker has recently said that Japan ought to be treated by the United States as a superpower on a par with the Soviet Union.

A vital question for Japan, which should be of overriding interest to American policymakers, is what Japan's objectives will be as a major world power. American objectives for the past four decades have been very clear. The United States knew what it wanted the world to look like: a community of nations democratically governed and organizing their economies to give maximum scope to market forces. To achieve this objective, the U.S. created the Marshall Plan, poured resources into untied aid to the developing world, carried the bulk of the defense burden, and kept its market open. These actions were not entirely selfless, to be sure, but they served the nation well. The Soviet Union has had its own stated goals during this period. Americans are watching carefully to see if those goals inimical to our own are shifting.

Japan has had a single-minded goal as well. Their goal has been to develop a manufacturing export base with supporting financial and technological capabilities to overcome a sense of vulnerability. Japan is still pursuing these objectives. If it continues to do so as a world leader, it will create a far different world than the one which America envisages as ideal. The fundamental question, therefore, in relations between the United States and Japan is the course that Japan will choose.

AN ANALYSIS OF JAPAN'S 1990 IMPORT-EXPANSION MEASURES

By Stephen V. Marks ¹

CONTENTS

	Page
Summary	443
A Description of the Tariff Cuts and Tax Plan	445
Some Potential Drawbacks of the Tax Measures	448
The Effect of the Tariff Cuts and Tax Measures on Foreign Trade Flows	451
Conclusions	453
Appendix	454

SUMMARY

In April 1990, the government of Japan implemented a comprehensive set of import-expansion measures, including tariff elimination for many manufactured imports and tax breaks for manufactured imports subject to zero tariffs. The plan also included expanded funding and eligibility for loan programs to finance imports, import facilities, and foreign investment in Japan, as well as several new programs intended to promote the internationalization of the Japanese market.² These measures were partly a response to concerns brought by the U.S. government to the Structural Impediments Initiative (SII) talks with Japan. In these talks each government proposed that the other undertake structural economic reforms that would expand international trade and further the reduction of trade imbalances.³ Even though the import-expansion

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² The measures are described in: Japan. Ministry of International Trade and Industry. *Import Expansion Measures*. Tokyo, January 1990.

³ American concerns with Japan included inefficiencies in its distribution system, exclusionary business practices, inefficient land use policies, the need for increased public investment, and anticompetitive aspects of the Japanese corporate groups (*keiretsu*). The American side argued that many of these problems were reflected in empirical findings that Japanese consumers pay higher prices for many products than do American consumers. Japanese concerns with the United States included its high federal deficit and low private savings rate, short-sighted corporate behavior reflected in inadequate investment in productive capacity and research and development, governmental policies that inhibited American exports and imports, antitrust regulations that limited business cooperation, and inadequate education and worker training. For details on some of the American concerns from the perspective of U.S. business, see: U.S. Congress. Senate. Committee on Finance. Subcommittee on Trade. *Structural Trade Impediments*. Hearings, 101st Cong., 1st Sess., November 6-7, 1989. Washington, U.S. Govt. Print. Off., 1989; and, *Joint Report of the U.S.-Japan Working Group on the Structural Impediments Initiative*. June 28, 1990.

measures devised by Japan were not fundamental structural reforms of the sort sought by the U.S. delegation, they were viewed as a step in the right direction and a potentially important complement to structural reform.

It is difficult to predict the symbolic or psychological effects of any of these measures or the practical benefits of the loan programs or the new import-promotion measures. The tariff cuts and tax plan do lend themselves to economic analysis, however, both in qualitative and quantitative terms, and are the focus of this paper.

The tariff cuts average roughly 3.8 percent and apply to a variety of manufactured items, including chemicals, metal and paper products, machinery, electrical products, transportation equipment, and other manufactured goods. The tax measures are budgeted for three years, and apply to the items in these categories that are subject to zero tariffs. Manufacturers in Japan who increase the value of their imports of the eligible items by more than 10 percent above the highest previous level can take either a 5 percent tax credit on their increased imports of the eligible items or accelerated depreciation deductions of up to 50 percent of the increase in the value of their imports of these items. Wholesalers and retailers in Japan can defer payment of corporate income taxes on an amount of taxable income equal to 20 percent of the increase in the value of their imports of the eligible items.

The tariff cuts are welcome to the United States under any circumstances. In contrast, the tax measures will provide incentives for import expansion, but at the cost of an added layer of distortions in Japanese markets. For example, they favor manufacturers in Japan over other importers and could therefore give these manufacturers an unfair competitive advantage. Moreover, because capital goods are a large share of the eligible items, and because of the effects of the depreciation provision, the tax plan will tend to reduce the cost of capital for Japanese producers. This could increase the long-run savings-investment imbalances between the United States and Japan.

The effect of the tariff cuts and tax measures on the total foreign trade imbalances of Japan and the United States will tend to be small. Even if trade imbalances are not reduced substantially, however, the measures could cause an expansion of both Japan's imports and exports. This is a worthy objective in light of evidence that Japan is unusually closed to manufactured imports compared to other industrial countries. To get a sense of the impact of the tariff cuts and tax measures on foreign trade flows, I have estimated their direct effects on Japan's imports, based on assumptions that favor finding a large impact on imports. I find that the tariff cuts could increase Japan's imports by nearly \$600 million, with more than \$200 million of that from the United States. The increase in imports due to the tax measures is more uncertain, and is estimated to be between \$0.7 and \$2.9 billion per year. The U.S. share is between \$0.3 and \$1.2 billion. To put these effects in perspective, however, the import incentives given by the tariff cuts and tax breaks are dwarfed by the rise in the value of the dollar against the yen since late 1988, which has worked to inhibit rather than expand U.S. exports to Japan.

A DESCRIPTION OF THE TARIFF CUTS AND TAX PLAN

Japan's tariff rates on manufactured goods are low already; it is other formal and informal barriers to trade that tend to be the real problems. And because tariffs in Japan are already low, there is not much left to eliminate: I calculate that the announced tariff cuts average roughly 3.8 percent for products exported from the United States to Japan. Nevertheless, the tariff cutting is welcome to the United States in both practical and symbolic terms. It should have a positive effect on Japan's manufactured imports, unless other barriers to trade are so extensive that no import expansion can occur.

The tariff cuts are permanent and are expected by the government of Japan to cost roughly \$300 million per year in foregone revenues. In contrast, the tax plan will be in effect for three years. The government of Japan expects it to cost \$1 billion per year in foregone revenues. Items eligible for the tax breaks are manufactured imports subject to zero tariffs and in Standard International Trade Classification (SITC) categories 5 through 8—chemicals, basic manufactures, machinery and transportation equipment, and miscellaneous manufactured goods. (Imports previously subject to zero tariffs, in addition to the imports for which tariffs were eliminated, are eligible.)

Japan's Ministry of International Trade and Industry (MITI) has stated that the imports eligible for the tax measures totaled roughly \$40 billion in 1988. This is consistent with a data set I have constructed.⁴ Table 1 shows the approximate values in 1988 of the eligible imports to Japan from around the world based on this data set.⁵ The United States accounted for more than 37 percent of the total of \$40.9 billion, versus only 27 percent of Japan's total manufactured imports of \$85.6 billion. *Chemicals* include aromatic hydrocarbons, antibiotics, film products, manufactured fertilizers, silicon, and radioactive items. Prominent among *Paper Products* are newsprint and coated paper cartons, and among *Basic Metals* are pig iron, silver, and platinum. *Machinery* includes computers and office machines, machine tools, engines and parts, equipment for electrical power generation and distribution, household appliances, agricultural and construction machinery, and other machinery and equipment for a wide variety of special uses. *Transportation Equipment* includes automobiles and parts, trucks, special-purpose vehicles, aircraft and parts, and ships and boats. *Electrical Products* include semiconductors and other integrated circuits, optical fibers, and telephone, radio, and television sets and apparatus. Instruments include watches and clocks, measuring instruments, and

⁴ For the data set, I selected SITC categories of goods from United Nations foreign trade data on the basis of detailed tariff data for Japan. The tariff information is from: Japan Tariff Association. *Customs Tariff Schedules of Japan, 1989*; and, Japan. Ministry of Finance. Customs Bureau. Planning Department. *Revision of Customs Tariff Rates for 1990, in Accordance with the Recommendations of the Customs Tariff Deliberations Council* (in Japanese). Tokyo, December 20, 1989. While the United Nations trade data follow the SITC classification, the tariff data follow the international Harmonized System classification. I have been able to establish a close, but not exact, concordance between the two.

⁵ The European countries are the twelve countries of the European Community, plus the six countries of the European Free Trade Area (EFTA). Entries in tables 1 and 3 may not add to the row or column totals due to rounding.

electromedical apparatus and instruments. *Other Manufactures* include tires, furniture, sporting goods, and musical instruments.

Table 1. ESTIMATED VALUE OF JAPAN'S IMPORTS OF THE ELIGIBLE PRODUCTS, 1988

(Millions of dollars)					
Category	United States	East Asia	Europe	Rest of World	Total
Chemicals.....	\$1,766	\$658	\$1,147	\$703	\$4,274
Paper Products.....	298	2	54	137	490
Stone and Glass Products.....	130	580	241	48	999
Basic Metals.....	218	481	782	1,790	3,271
Metal Products.....	250	2,074	291	908	3,522
Machinery.....	5,610	2,146	3,230	319	11,304
Electrical Products.....	2,476	1,279	728	62	4,545
Transportation Equipment.....	2,352	232	3,325	202	6,111
Instruments.....	1,430	574	1,130	54	3,188
Other Manufactures.....	770	1,572	834	69	3,244
Total.....	15,300	9,595	11,763	4,290	40,949

The tax breaks are different for manufacturers versus wholesalers and retailers, and the provisions can differ markedly in their effects on the unit cost of increased imports. First of all, a manufacturer whose imports of the qualified items are at least 10 percent higher in value than in any previous year can select either a tax credit or accelerated depreciation deductions. The manufacturer will presumably select the measure that provides the larger total tax saving.

The tax credit equals 5 percent of the increase in the value of imports of the qualified items, and is subject to a limit of 10 percent of corporate tax payments, or 15 percent for smaller companies. As long as the limit is not binding, the credit will reduce the unit cost of the increase in imports by 5 percent. This gives the firm a direct incentive to increase its imports of the qualified items.

The depreciation provision is potentially the most powerful of the tax breaks and is also the most complex. Under the provision, a manufacturing firm can claim accelerated depreciation on all capital goods that it owns at the end of the tax year, and that it bought in that year or in the two prior years. Both imported and domestically-produced capital goods are eligible, and accelerated depreciation can be claimed on a given piece of machinery or equipment in more than one year. Qualified capital goods subject to a zero tariff are allowed additional depreciation equal to 20 percent of scheduled depreciation in the given year, while other capital goods are allowed 10 percent. The key is that the extra depreciation deductions cannot exceed 50 percent of the increase in the value of imports of all qualified goods.

The accelerated depreciation measure creates a tax savings because a firm can shift part of its tax payments for the current year to future years, and, in the meantime, can earn interest on the funds it retains. The actual savings will depend on the rate of interest available to the firm, the number of years for which the payment of taxes is deferred, the amount of extra depreciation, the method by which depreciation is calculated, and the corporate

income tax rate. The corporate income tax rate in Japan is 37.5 percent. Japanese firms typically calculate depreciation based on the double-declining-balance method, since it is more advantageous than the straight-line method. The number of years for which payment of taxes can be deferred is a function of the date of purchase and allowable economic life of the asset; virtually all machinery and equipment in Japan has a statutory life of less than 15 years.⁶ Finally, the short-term money-market interest rate, the long-term government bond yield, and the average bank loan rate in Japan were all in the general vicinity of 6 percent in Japan in early 1990.

Table 2 shows a range of discounts on increased eligible imports for firms able to claim accelerated depreciation up to the 50 percent limit, based on the double-declining-balance method of calculation, for newly-purchased assets with economic lives of 5, 10, or 15 years, and with interest rates of 6 or 8 percent. Because nearly all capital goods are qualified for the plan, extra depreciation is assumed to be 20 percent of scheduled depreciation in the current year. With these parameters, the discounts are between 2.07 and 6.29 percent. In practice the discount available to a firm will depend on its mix of assets and the actual interest rate, but in any case, the firm will have an incentive to increase its imports of the qualified items.

The calculation of the discounts shown in table 2 assumes that the 50 percent limitation on additional depreciation is binding for a firm. On the other hand, suppose that the limitation is *not* binding, and that the firm finds that its tax bill is lower with accelerated depreciation than with the tax credit. In this case, additional purchases of eligible imports *per se* will not generate additional tax savings, so the firm will not have a direct incentive at the margin to increase its imports. However, because additional purchases of capital goods (either domestic or imported) will lead to additional tax savings in this case, there is a discount on purchases of capital goods. With an interest rate of 8 percent, the discount is roughly 0.4 percent for qualified capital goods eligible for 20 percent extra depreciation, and roughly 0.2 percent for other capital goods eligible for 10 percent extra depreciation. (These discounts apply to the total cost of the capital goods, not just the increase in value.) This lowers the cost of capital to the firm, but creates only indirect incentives for increased importation: it gives imported capital goods no cost advantage over capital goods made in Japan—for the cases in which domestic alternatives exist.

Finally, recall that a manufacturer can claim accelerated depreciation on capital goods purchased in the past two years as well as in the current year, and more than once on a particular item. This means that additional purchases of capital goods in a given year can lead to an anticipation of additional tax savings in the future, if the firm expects the 50 percent limitation on extra depreciation will not be binding in the future. Like the case in which the 50 per-

⁶ For an explanation of the alternative ways to calculate depreciation, see, for example, Brigham, Eugene F. *Financial Management: Theory and Practice*. Third ed. Chicago, Dryden Press, 1982. For a listing of statutory asset lives in Japan, see table 5, *The Useful Lives of Selected Fixed Assets*, in: Japan. Ministry of Finance, Printing Bureau, under authorization of Tax Bureau. *An Outline of Japanese Taxes, 1989*. Tokyo, 1989. The statutory salvage value on tangible assets in Japan is 10 percent.

Table 2. PERCENTAGE DISCOUNT ON INCREASED ELIGIBLE IMPORTS IF THE ACCELERATED DEPRECIATION PROVISION IS CLAIMED

(Based on assumptions given in the text)

	Interest Rate	
	6 Percent	8 Percent
5-Year Asset Life	2.07	2.62
10-Year Asset Life	3.84	4.71
15-Year Asset Life	5.24	6.29

cent limitation is not binding in the current year, this can lower the cost of capital, but will not give imported capital goods any cost advantage over capital goods made in Japan.

The tax measure for importation of qualified goods by wholesalers and retailers is more straightforward. A substantial portion of this importation involves the Japanese trading companies, the nine largest of which control roughly half of total imports to Japan.⁷ The plan permits wholesalers and retailers to defer payment of corporate income taxes on an amount of taxable income equal to 20 percent of the increase in the value of their imports of the qualified items. The amount removed from current taxable income is added to taxable income over the next five years in five equal amounts. Like the accelerated depreciation provision, this reduces the cost of the increase in qualified imports because the importer can earn interest on funds that would otherwise have been used to pay taxes immediately. With the corporate income tax rate at 37.5 percent and interest rates between 6 and 8 percent, this cuts the unit cost of increased imports by 1.18 to 1.51 percent.⁸

SOME POTENTIAL DRAWBACKS OF THE TAX MEASURES

The proposed tax incentives cannot substitute for structural reform of the Japanese economy. For example, the tax breaks go primarily to manufacturers. Japanese consumers will enjoy few direct benefits, especially in the absence of structural reforms that make markets for consumer products in Japan more price competitive. Moreover, in some ways the tax measures run counter to some of the basic themes brought by the U.S. Government to the SII talks—that Japan should reduce governmental interference in the market mechanism, and should instead adopt policies that promote increased price competition. This leads to a number of specific potential problems.

First, and typical of exceptions and loopholes in any tax system, the import-expansion measures could incite behavior aimed at gaining artificial tax advantages rather than based on economic fundamentals. For example, the tax measures create incentives for

⁷ McMillan, Charles J. *The Japanese Industrial System*. Berlin, Walter de Gruyter & Co., 1989. p. 240.

⁸ At a 6 percent interest rate, the present discounted value of deferring one dollar of tax payments from the current year to five equal payments over the next five years is roughly 0.1575 dollars. The reduction in the unit cost of increased imports of the qualified items is therefore $(20 \times .375) \times (.1575) = 1.18$ percent for wholesalers and retailers. A similar calculation can be done for other rates of interest.

firms to export and then reimport goods, perhaps after minor modification abroad. Such products are reportedly not eligible for the tax breaks, but establishment of a set of "foreign content" criteria on which to base eligibility in this respect could be very difficult. Enforcement of these criteria could require extensive monitoring and administrative guidance by the government of Japan—the sort of intervention the U.S. side sought to lessen through the SII talks.

Second, the tax plan lowers the cost of capital in Japan in two ways. One is that the accelerated depreciation provision could directly reduce the cost of capital goods for some manufacturers, as described in the previous section. The other is that capital goods are heavily represented in the list of eligible items. I estimate that business capital goods make up more than 49 percent of the eligible items by value, but only 24 percent of Japan's total manufactured imports. Nearly all of Japan's imports of business capital goods are eligible. (The government of Japan has presented this as a selling point for the plan, since it means that the plan will favor the United States, a major exporter of machinery and equipment to Japan. This may be one example of the disadvantages of using U.S. political and economic influence, rather than multilateral negotiation, to open foreign markets.) Therefore, the tax breaks will tend to cut the cost of imported machinery and equipment, which in turn will impose greater price discipline on capital goods made in Japan.

The problem is that Japan is already in the midst of a spectacular private investment boom, with private investment in plant and equipment equal to 23.5 percent of gross national product in 1989, compared with 15 to 16 percent in the early 1980s, and compared with 12.3 percent in the United States in 1989. Cultural and statistical differences may account for part of the discrepancy between the two nations, but many believe that differences in the cost of capital to Japanese and American producers have played an important role.⁹ There may be a certain logic in promoting labor-saving capital investment at a time of serious labor shortage in Japan. However, in the SII talks the U.S. delegation sought commitments from the government of Japan to increase *public* investment on housing, transportation, and other infrastructure. Tax measures that pull even more of Japanese resources into *private* investment will not serve this end or correct the basic long-run economic imbalances between the United States and Japan.

Third, the plan adds distortions to the economy by treating different kinds of importers differently. Manufacturers receive discounts of 5 percent or more on their increased imports of eligible items, while other importers receive at most a tax-deferral benefit of roughly one to two percent. This means that the plan could give manufacturers in Japan an unfair competitive advantage. This is a problem not just for wholesalers and retailers in Japan, but for manufacturers in other countries as well. For example, American automobile and auto parts producers have recently expressed the concern that Japanese automobile manufacturers who import cars

⁹ These cost differentials have been documented by several recent studies. See, for example: McCauley, Robert N., and Steven A. Zimmer. Explaining International Differences in the Cost of Capital. *Federal Reserve Bank of New York Quarterly Review*, Summer 1989. p. 7-28.

and parts from abroad to Japan could claim the 5 percent tax credit, but that foreign automobile companies with no manufacturing operations in Japan would have to settle for the much smaller tax-deferral benefit. This differential treatment clearly will not make the playing field of international competition more level.

The difference in the treatment of manufacturers versus other importers leads to a more general problem: it creates incentives for manufactured imports to be channeled through Japanese manufacturing companies. The share of Japan's imports controlled by the large trading companies has diminished in recent years, and the tax measures could hasten that process by creating incentives for manufacturers to import goods directly, or even to enter the wholesaling and retailing business. This could add to budgetary costs of the plan, without in itself spurring any net increase in imports. In addition, there are incentives for manufacturers to purchase and retain ownership of capital goods used by other sectors of the Japanese economy: machinery and equipment could in principle be leased to their ultimate users, with the tax benefit shared by the manufacturer and the ultimate user. Such leasing is prohibited by the government of Japan, but sorting out the tangled web of legitimate versus illegitimate activities by manufacturers and their subsidiaries in general could be very costly.

Fourth, the 10 percent import-expansion threshold required for manufacturers to be eligible for the tax breaks means that Japanese manufacturers who have exhibited sluggish import growth in the past may not find it in their interest to increase their imports at all. On the other hand, it could spur manufacturers that otherwise would not have increased their imports by the full 10 percent to do so. Alternatively, it could give firms incentives to pool their import buying: some manufacturers could handle the import purchases of other firms, so that the increase in their combined import demands would reach the 10 percent threshold. It could also cause individual firms to lump their import purchases together in a single fiscal year so as to meet the threshold at least once. Import price inflation will make attainment of the 10 percent threshold easier, however, especially if the recent depreciation of the yen against the dollar and other currencies continues.

Finally, by applying only to the *increase* in the value of imports, the tax measures are clearly intended to provide incentives for import expansion at a low cost in terms of budgetary resources. This creates two distinct problems. First, once a company has expanded its imports under the plan, it will have to expand its imports even further to get any future tax breaks. This could end up pulling the rug out from under the company—causing it to return its import buying to the original level—in the absence of any fundamental outward shifts in its demand for imports, or unless it pools its import buying with other firms. Second, there is a theoretical and paradoxical possibility that any tax break that applies only to incremental purchases by companies in a highly competitive market will make those companies worse off. With the tax breaks in effect, individual companies will have incentives at the margin to expand their purchases of the favored goods. No individual company will take account of the negligible effect its own

actions will have on market prices, but the net effect of the actions of all the companies could be to bid up the market prices of the goods. The tax break per unit would exceed the increase in price, but would only cover the extra units purchased. The companies would have to pay a higher price for amounts already purchased, and these losses could easily exceed their gains on their additional purchases.¹⁰

THE EFFECT OF THE TARIFF CUTS AND TAX MEASURES ON FOREIGN TRADE FLOWS

Despite these drawbacks, the plan *could* have a positive impact on foreign trade, which in some sense is the bottom line. Economist Martin Feldstein has pointed out that the tax plan will not reduce the overall current account surplus of Japan—unless it reduces the amount by which total saving exceeds total investment in Japan.¹¹ Similarly, it cannot reduce the overall current account deficit of the United States—unless it reduces the amount by which total saving in the United States falls short of total investment. For example, if the plan *does* expand imports to Japan, it will tend to cause the yen to fall in value against the dollar and other currencies. This will raise the monetary cost in Japan of goods imported to Japan, and lower the monetary cost in world markets of goods exported from Japan, thus tending to reduce Japan's imports and expand Japan's exports. Even without changes in exchange rates, the plan will tend to raise Japan's exports by adding to domestic production capacity. Moreover, Japanese suppliers who find their domestic sales diminished due to increased imports could seek new export markets. On the other hand, with the incentives for increased purchases of capital goods, the plan *could* increase total investment relative to total saving in Japan. In any case, prediction of its ultimate effects on the current accounts of the United States and Japan is difficult.

Even if the tariff cuts and tax measures do not significantly lower global current account imbalances, they could foster an expansion of both Japan's imports *and* exports. Some would argue that virtually any measure that opens Japan to increased imports of manufactured goods can be considered a step in the right direction, given the evidence that Japan has been unusually closed to manufactured imports. For example, in 1987 Robert Lawrence estimated that Japan's manufactured imports were about 40 percent lower than would be expected if it behaved like a typical industrial economy.¹²

To give a sense of the direct economic effects of the tariff cuts and tax incentives on Japan's annual level of manufactured imports, table 3 presents the results of a quantitative analysis. The estimates are based on the 1988 import levels shown in table 1. The first column shows the estimated effects of the tariff cuts. The

¹⁰ This loss would not occur in a market in which companies are able to collude with each other, since the companies would never act in a way harmful to their joint interests.

¹¹ Feldstein, Martin. Japan's Latest Export-Promotion Plan. *Wall Street Journal*, January 5, 1990.

¹² Lawrence, Robert Z. Imports in Japan: Closed Markets or Minds? *Brookings Papers on Economic Activity*, 1987:2. p. 517-54.

impact of the tax incentives is much more uncertain, and my strategy is simply to use high and low estimates to bracket a range of potential effects. The high estimates are shown in the second column, and assume that all eligible items are imported by manufacturers, who are all able to claim extra depreciation up to the limit of 50 percent of the increase in the value of eligible imports. This requires that these firms meet the 10-percent import-expansion threshold, and earn positive profits so as to be able to take advantage of additional deductions. The low estimates are shown in the third column, and assume that all eligible items are imported by wholesalers and retailers, who claim the tax deferral on 20 percent of the increase in the value of eligible imports. The actual impact of the tax plan will depend on the share of importation retained by wholesalers and retailers, and the extent to which manufacturers select the depreciation option instead of the tax credit. Data that would permit a more detailed analysis along these lines are not available.

All of the estimates in table 3 are based on simplifying assumptions that favor finding a large effect on Japan's imports. An important assumption is that foreign prices of the imported items are constant in yen terms and do not increase because of increased import demand in Japan. This assumption will be violated if the increased demand causes the yen to fall in value against other currencies. Moreover, it is assumed that Japanese producers of goods that compete with these imported items will not lower their own prices in response to the increased import competition. Finally, an interest rate of 8 percent (high for Japan in recent years) is assumed in calculation of the discounts given by accelerated depreciation and tax deferral. (The discount assumed for accelerated depreciation is 6.29 percent, the largest value shown in table 2, and for tax deferral is 1.51 percent.) If these assumptions are not met, then table 3 will overstate the potential range of effects of the measures. Other details of the calculations, and data used, are presented in the appendix.

Table 3 puts the direct effect of the tariff cuts on the value of Japan's imports at nearly \$600 million, and over \$200 million for the United States. The tax breaks are estimated to yield an increase in imports of between \$0.7 and \$2.9 billion, with the U.S. share of the increase between \$0.3 and \$1.2 billion. The biggest potential increases due to the tax breaks by sector are in machinery, chemicals, electrical products, and metal products.

The tariff cuts will presumably be permanent, while the tax measures will last only three years. Therefore, absent any fundamental changes in Japanese import demand, the effects of the tax measures will only be temporary. The imponderable in all this is the extent to which the entire package of policy changes could have a lasting symbolic or psychological impact. For example, some observers have hypothesized that conformity with cultural norms—rather than buying Japanese products per se—is important to Japanese consumers and managers. If cultural norms can be shifted sufficiently toward acceptance of foreign products, then adherence to these norms could work in favor of opening the Japanese econo-

Table 3. ESTIMATES OF THE ANNUAL INCREASE IN THE VALUE OF TOTAL IMPORTS TO JAPAN DUE TO THE DIRECT ECONOMIC EFFECTS OF THE IMPORT-EXPANSION MEASURES

(Millions of dollars, based on 1988 import values)

Category	Due to the Tariff Cut	Due to the Tax Breaks:	
		High ¹	Low ²
Chemicals.....	\$139	\$583	\$140
Paper Products.....	14	43	10
Stone and Glass Products.....	12	92	22
Basic Metals.....	6	35	8
Metal Products.....	144	315	76
Machinery.....	105	875	210
Electrical Products.....	27	400	96
Transportation Equipment.....	56	115	28
Instruments.....	69	235	56
Other Manufactures.....	15	212	51
World Total.....	587	2,905	698
U.S. Total.....	201	1,156	278

¹ Assumes that all eligible items are imported by manufacturers, who are all able to claim accelerated depreciation up to the 50 percent limit of the increase in the value of eligible imports.

² Assumes that all eligible items are imported by wholesalers and retailers, who claim the tax deferral on 20 percent of the increase in the value of eligible imports and face an interest rate of 6 percent.

my.¹³ In this case, Japanese import demand would shift outward permanently, and the temporary measures would have a lasting effect on the level of imports, perhaps larger than the effects shown.

CONCLUSIONS

The numbers in table 3 are substantial, but are dwarfed by the bilateral trade deficit for the United States with Japan, which is estimated at roughly \$49 billion for 1989. In any case, there is no guarantee that the measures will reduce the bilateral imbalance or even the overall trade imbalances of the United States and Japan.

Moreover, to put the changes in the unit cost of imports in perspective, between late November 1988 and the end of March 1990 the dollar rose in value by more than 30 percent against the yen. This dwarfed the import incentives that were later created by the tariff cuts and the tax plan, and inhibited rather than encouraged imports to Japan. During March 1990 alone the dollar appreciated against the yen by more than 6 percent, more than offsetting the permanent incentives to import given by the 3.8 percent tariff cuts.

Therefore, this set of import-expansion measures represents a step in the right direction in terms of the opening of Japanese markets to foreign goods, but only a very small step. Moreover, the tax measures add a new layer of distortions to the Japanese economy. Only with significant progress by both Japan and the United States toward lasting structural reforms—especially changes in policies and private behavior that reduce the fundamental savings-investment imbalance between the two countries—will prospects

¹³ For a survey of these issues, see: Harris, Richard. 'Market Access' in *International Trade*. In Stern, Robert M., ed. *Trade and Investment Relations among the United States, Canada, and Japan*. Chicago, University of Chicago Press, 1989.

for expansion of trade and reduction of trade imbalances become substantially brighter.

APPENDIX

Table 4 summarizes the other data used to calculate the effects of the tariff cuts and tax measures on Japan's imports. The first column shows the import price elasticities assumed for the various categories of qualified goods. These elasticities indicate the percentage increase in import volumes caused by a 1 percent decrease in the prices of the imported goods, all else equal.¹⁴ These elasticities presumably reflect not only the fundamental conditions of demand and supply for these goods in Japan but also the extent to which formal and informal nontariff barriers to trade inhibit an increase in imports in response to a decrease in import prices.

The values in the other two columns are derived from data on U.S. exports to Japan in 1988. For each category of qualified imports, the second column shows the share that is subject to a tariff cut. The remainder of the goods in each category were already subject to a zero tariff. The overall share of qualified imports subject to a tariff cut was 0.36 for the United States. The third column shows the weighted-average tariff cut for the shares subject to tariff cuts.¹⁵ The average tariff cut for all U.S. products in the ten sectors was nearly 3.8 percent.

The effects of tariff cuts were estimated for table 3 by finding the product of the three columns of table 4, converting the result from percents to decimals, then multiplying it by the "Total" column of table 1. Similarly, the high and low estimates of the effects of the tax measures were obtained by finding the product of the "Total" column of table 1 and the first column of table 4, multiplying this product by the percentage discount in the unit cost of increased imports in each of the cases, then converting the result from percents to decimals. The discount is 6.29 percent in the "High" case and 1.51 percent in the "Low" case. Similar calculations have been made for the U.S. share of Japan's imports in each category of goods, and are summed and presented at the bottom of each column in table 3.

Table 4. DATA USED IN ESTIMATION OF THE INCREASE IN THE VALUE OF ELIGIBLE IMPORTS

Category	Import Price Elasticity	Share Subject to Tariff Cut	Average Tariff Cut, Percent
Chemicals.....	2.17	0.42	3.62
Paper Products.....	1.40	0.43	4.59
Stone and Glass Products.....	1.46	0.24	3.43
Basic Metals.....	0.17	0.42	2.68
Metal Products.....	1.42	0.69	4.19
Machinery.....	1.23	0.21	3.63
Electrical Products.....	1.40	0.15	2.85
Transportation Equipment.....	0.30	0.77	3.96
Instruments.....	1.17	0.48	3.85
Other Manufactures.....	1.04	0.13	3.33

¹⁴ The import price elasticities for all but the last two categories are from: Lawrence, Imports in Japan, p. 540. The last two elasticities are from: Stone, Joe A. Price Elasticities of Demand for Imports and Exports: Industry Estimates for the U.S., E.E.C. and Japan. *Review of Economics and Statistics*, no. 61, May 1979. p. 306-12.

¹⁵ The numbers in the second and third columns are based on tariff-line-item data from the U.S. Census Bureau, and the Japanese tariff data cited in footnote 4. The two data sets are closely but not exactly matched, due to U.S.-Japan differences in Harmonized Schedule tariff classifications beyond the six-digit level.

OPENING OF JAPANESE MARKETS TO AGRICULTURAL IMPORTS

By Donna U. Vogt ¹

CONTENTS

	Page
Summary	455
Introduction	456
Agricultural Trade Situation	457
State and Federal Government Assistance for Developing Agricultural Markets in Japan	458
State Departments of Agriculture Export Promotion Programs	458
USDA's Export Promotion Programs	460
Targeted Export Assistance Program (TEA)	461
U.S. Market Development Cooperators Program (Cooperators)	462
Federal Negotiating Efforts To Open Japanese Food and Agricultural Markets	462
Beef and Citrus	463
Selected Processed Foods	464
Remaining Restrictions on Market Access	464
Tariffs and Quotas	465
Rice	466
Standards	467
Structural Impediments	468

SUMMARY

Japan has been the largest single-country market for U.S. agricultural products for the last 15 years. The Japanese market, which took between 14 and 16 percent of total U.S. agricultural exports from fiscal years 1974-1982, grew to \$8.2 billion in FY89. The major product exports that year were beef, feed grains, soybeans, fruits and vegetables, and wheat.

Several State and Federal Government programs assist private U.S. exporters to market their products in Japan by funding a variety of promotional programs and by negotiating trade agreements that lower barriers to Japanese markets. Nonprofit commodity organizations, regional and State groups, and U.S. and overseas businesses and trade associations carry out these market development activities in Japan. Several State governments fund private U.S. companies to market products that are uniquely from that State. States and regional State organizations also administer funds from two U.S. Department of Agriculture (USDA) programs: the Targeted Export Assistance (TEA) program and the U.S. Market Development Cooperators Program (Cooperators).

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Japan has recently negotiated several market-opening agreements, including one on beef and citrus products, and has conducted a series of internal reforms that have complemented the changes in demand within Japan for agricultural products. Japan, however, maintains a number of import barriers that prevent the United States from supplying greater amounts of food and fiber. Two Japanese policy objectives, national food security and the maintenance of rural income on a par with urban income, hinder U.S. export sales. In addition, Japan's farm policy structure has supported protectionist barriers that prevent some expansion of markets for certain U.S. products.

Even with recently reduced barriers to trade, many U.S. analysts and businesses continue to believe that further policy changes opening Japanese markets are needed. There continue to be three types of barriers hindering market access for agricultural products: 1) tariffs and quotas such as the ban on rice imports; 2) standards that prevent market access for health and sanitary reasons or for additives, and packaging requirements; and 3) structural barriers such as state trading monopolies and distribution systems that prevent the free flow of food and agricultural products throughout Japan.

INTRODUCTION

The United States had a \$49 billion merchandise trade deficit with Japan in 1989. Japan's persistent large external trade surplus has evoked mounting international pressures on Japan to adopt policies that accelerate structural adjustment and increase imports, including agricultural imports. U.S. officials emphasize that the trade imbalance will continue if Japan persists in protecting its inefficient sectors, such as agriculture, from foreign competition.² Although the pressure is growing, it is being carefully guided so as not to jeopardize the relationship that positioned Japan as the largest single-country market for U.S. agricultural exports for the last 15 years.

Domestic Japanese policies, based on changing domestic politics, are beginning to reflect a more open perspective on import trade. Imports are increasing. Liberalized import restrictions on beef, citrus, and other processed food products have increased U.S. exports to Japan. In fiscal year (FY) 1989, the Japanese market accounted for over one-fifth of total U.S. agricultural exports.

Even though this trade appears to be increasing, a number of import barriers to agricultural products, including tariffs and quotas, standards, and other structural impediments, prevent optimal expansion of the trade. Some Members of Congress are interested in how to best nurture the growth in agricultural exports to Japan without increasing the Federal budget deficit. A series of Federal and State government efforts, market promotion activities and negotiations over trade barriers and problems, have increased demand for these agricultural products. This report looks at agricultural trade with Japan, discusses the efforts underway to in-

² U.S. Department of Agriculture. Foreign Agricultural Service. *Agricultural Attache Report*. Report No. JA0039. March 26, 1990. p. 2.

crease U.S. agricultural exports, and examines the barriers that remain.

AGRICULTURAL TRADE SITUATION

Japan has been the largest single-country market for U.S. agricultural products for the last 15 years. The Japanese market, which took between 14 and 16 percent of total U.S. agricultural exports from fiscal years 1974–1982, grew in the 1980s (table 1). In FY89, U.S. agricultural exports to Japan totaled \$8.2 billion. The major product exports that year were beef (\$2,212 million), feed grains (\$1,934 million), soybeans (\$935 million), fruits and vegetables (\$788 million), and wheat (\$468 million). Sales of U.S. agricultural exports to Japan help the U.S. economy by offsetting high import levels and by enhancing farm income.³

Table 1. VALUE OF U.S. AGRICULTURAL EXPORTS TO JAPAN, AND PERCENTAGE OF TOTAL AGRICULTURAL EXPORTS, FISCAL YEARS 1974–1989

(In millions of U.S. dollars)

Fiscal Years	Agricultural Exports to Japan	Total U.S. Agricultural Exports	Exports to Japan As a Percentage of Total Agricultural Exports
1974.....	3,353	21,293	16%
1975.....	3,185	21,578	15%
1976.....	3,408	22,147	15%
1977.....	3,773	23,974	16%
1978.....	4,159	27,289	15%
1979.....	5,061	31,979	16%
1980.....	5,749	40,481	14%
1981.....	6,706	43,780	15%
1982.....	5,749	39,097	15%
1983.....	5,888	34,769	17%
1984.....	6,935	38,027	18%
1985.....	5,663	31,201	18%
1986.....	5,159	26,329	20%
1987.....	5,553	27,876	20%
1988.....	7,274	35,378	21%
1989.....	8,152	39,651	21%

Source: U.S. Department of Agriculture, Economic Research Service. *FATUS: Foreign Agricultural Trade of the United States*. Annual Data. Washington.

Increases in Japan's per capita income and changes in the Japanese diet have led to an increase in demand for red meats, fish, poultry, dairy products, vegetables, fruits, and fruit juices.⁴ Fish prices have increased while meat prices have declined, which encouraged the Japanese to eat more meat. The United States has been in a good position to supply many of these products. Over the last six years, Japanese imports of high-value products such as meats, fruits, vegetables, nuts, and juices have all increased substantially, while imports of bulk raw commodities (wheat, corn, barley, and soybeans) leveled off, or declined somewhat (table 2).

³ Coyle, William. *The Changing Structure of Japanese Agricultural Trade*. Economic Research Service. U.S. Department of Agriculture. Unpublished Manuscript. March 1990. p. 3.

⁴ Taha, Fawzi A. *Patterns of Change in Japanese Cereal Production, Consumption, and Trade*. *World Agriculture: Situation and Outlook Report*. Washington, Economic Research Service, U.S. Department of Agriculture, 1989. WAS-56, September 1989. p. 9–14.

Table 2. TOTAL AND SELECTED U.S. AGRICULTURAL EXPORTS TO JAPAN, FISCAL YEARS 1984-1989

(In millions of U.S. dollars)

	1984	1985	1986	1987	1988	1989
Total U.S. Agricultural Exports to Japan	6,935	5,663	5,139	5,553	7,274	8,152
Selected Exports:						
Grain and Feed Products.....	3,094	2,336	1,835	1,769	2,395	2,787
Wheat	557	498	440	353	396	469
Corn	2,074	1,293	982	967	1,477	1,600
Sorghum	197	241	198	186	215	296
Barley	61	15	11	0	10	14
Other	205	289	204	264	323	408
Oilseeds and Products.....	1,303	965	896	851	986	1,077
Soybeans	1,282	945	880	830	958	935
Other	21	20	16	21	28	142
Animals and Animal Products	971	910	1,122	1,317	1,648	2,004
Beef and Veal.....	308	353	426	522	760	1,036
Pork	84	27	49	71	174	208
Poultry Meat.....	87	64	81	105	134	146
Hides and Skins.....	292	277	304	355	444	404
Other	200	189	262	264	136	170
Fruits, Nuts, Vegetables and Products	627	626	740	750	849	916
Fresh Citrus Fruit	192	197	226	248	288	294
Dried Fruit.....	28	32	35	39	49	50
Fruit Juices.....	21	31	28	39	61	87
Vegetables and Preparations.....	142	135	154	185	264	219
Tree Nuts	72	72	84	134	97	103
Other	172	159	213	105	177	163
Tobacco, Unmanufactured	312	326	293	318	263	297
Cotton, Excl. Linters.....	590	461	220	342	537	525

Source: U.S. Department of Agriculture Economic Research Service. *FATUS: Foreign Agricultural Trade of the United States*. Various Issues; and Foreign Agricultural Service. Trade and Economic Information Division. FAS Data Base. November 24, 1989.

In the last five years, U.S. market shares of Japanese agricultural imports varied by product. For example, U.S. market shares dropped in soybeans and whole cattle hides; dropped and then recovered for corn, barley, sorghum, cotton, pork, and poultry meat; remained the same for wheat and citrus fruit; and increased for beef. These shifting trade patterns reflect, in part, competition from other suppliers (like Australia and China) capturing more of the Japanese market through lower prices. The U.S. share of some major Japanese agricultural imports has ranged from a low of 5 percent of barley to a high of 99 percent for citrus fruit in 1988 (table 3).

STATE AND FEDERAL GOVERNMENT ASSISTANCE FOR DEVELOPING AGRICULTURAL MARKETS IN JAPAN

Federal officials also negotiate with Japanese officials to ease trade problems. The 1988 Beef and Citrus Understanding and the lifting of quotas on 11 U.S. food and agricultural product categories are recent examples of successful negotiations in efforts to expand markets in Japan.

STATE DEPARTMENTS OF AGRICULTURE EXPORT PROMOTION PROGRAMS

According to a recent survey of 51 State agricultural export marketing organizations, 30 States have some type of representation in Japan, either through hired Japanese consultants or established of-

Table 3. U.S. PERCENTAGE SHARE OF JAPAN'S PRINCIPAL AGRICULTURAL COMMODITY IMPORTS, CALENDAR YEARS 1984-1988

(In percent)

	1984	1985	1986	1987	1988
Selected Commodities					
Corn.....	97	77	63	78	90
Sorghum.....	42	54	42	62	59
Barley.....	26	8	4	0	5
Soybeans.....	93	88	90	85	78
Wheat.....	57	58	57	59	58
Raw Cotton.....	53	41	29	36	42
Pork.....	12	6	7	7	12
Beef.....	29	31	35	39	42
Poultry Meat.....	50	46	43	39	45
Whole Cattle Hides.....	86	88	86	82	78
Tobacco.....	61	64	65	65	59
Citrus Fruit.....	97	96	98	98	99

Source: Japan, Ministry of Finance. *Japan Exports and Imports: Commodity by Country, 1984, 1985, 1986, 1987, and 1988*. December issues, United Nations Trade Data Summary. As found in U.S. Department of Agriculture, Economic Research Service. *East Asia Outlook and Situation Report*, RS-86-2, May 1986, RS-87-2, May 1987; and, *Pacific Rim: Agriculture and Trade Report, Situation and Outlook*, RS-88-2, August 1988, and RS-89-3, August 1989.

fices in Japan.⁵ Many States have representatives whose primary job is to find markets for agricultural products from that State. These activities consist of conducting marketing research, matching importers and exporters, sponsoring trade missions, spreading market opportunity information on computer-based systems, running trade exhibitions, conducting advertising campaigns, tailoring market strategies to trends in Japan, and working to attract and host buying missions from Japan.

Besides these general activities, the market promotions are tailored to State-produced products, often those that have value added through processing. For example, Oregon lists the following products that it promotes out of its Tokyo office: meat products, frozen french fries, strawberries, grass and vegetable seeds, seafood, Christmas trees, ready-to-serve items, confectionery items, frozen soup bases, canned corn, and frozen vegetables.⁶ Washington State has used Federal funds to sponsor promotional activities for asparagus, wine, and seafood from Washington.⁷ Colorado promotes beef exports as well as reverse beef industry investment.⁸ One State, California, has a \$3.5 million matching fund for promoting food and agricultural products from California.⁹ California honeydew melons have made a big hit in Japan, with the United States accounting for 72 percent of Japanese imports by quantity in 1988.¹⁰

⁵ Virginia. Department of Agriculture and Consumer Services. Office of International Marketing. *Survey of 51 State Agricultural Export Marketing Organizations*. Richmond, 1989. p. 7-8. A 1988 list of Japanese representatives for States was compiled by the National Association of State Departments of Agriculture (NASDA). David Ashby. (202) 628-1566.

⁶ Telephone conversation with Gary Roth, International Trade Manager. Oregon Department of Agriculture. March 26, 1990. (503) 229-6734.

⁷ Telephone conversation with Marianne Paulson, International Marketing Specialist. Washington Department of Agriculture. April 6, 1990. (206) 753-5048.

⁸ Telephone conversation with Tim Larson, Director of Market Development. Colorado Department of Agriculture. April 11, 1990. (303) 866-3561.

⁹ Telephone conversation with Natalie Mason, Trade Officer. California Department of Food and Agriculture. March 27, 1990. (916) 322-4339.

¹⁰ Zanin, Bruce J. The Japanese Market for Melon. *Horticultural Products Review*. Foreign Agricultural Service. U.S. Department of Agriculture. January 1990. p. 25.

USDA'S EXPORT PROMOTION PROGRAMS

The Federal Government through the U.S. Department of Agriculture's, Foreign Agricultural Service (FAS) implements TEA and the Cooperator programs by working with nonprofit organizations, private sector groups, commodity and agribusiness associations, and individual firms. Seventy groups carry on market development activities in Japan; 13 have offices containing representatives who promote food and agricultural products, 57 others are funded through USDA programs to do the same (table 4).

Table 4. PARTICIPANTS IN EXPORT PROMOTION ACTIVITIES IN JAPAN: PARTICIPANT NAMES, NUMBER OF EXPORT PROMOTION ACTIVITIES, AND ORGANIZATIONS WITH OFFICES IN JAPAN, FISCAL YEAR 1990

Group/Organization/Company	Cooperator Activities	Targeted Export Assistance Activities	Offices in Japan
Alaska Seafood Marketing Institute.....		8	
American Hardwood Export Council.....			X
American Horticultural Marketing Council.....	1		
American Plywood Association.....			X
American Quarter Horse Association.....		1	
American Seed Trade Association.....	9		
American Sheep Industry Association, Inc.....	4		
American Soybean Association.....	4		
Blue Diamond Growers.....			X
California Avocado Commission.....		5	X
California Cling Peach Advisory Board.....		5	X
California Kiwifruit Commission.....		5	X
California Pistachio Commission.....		2	
California Prune Board.....			X
California Raisin Advisory Board.....		5	X
California Strawberry Advisory Board.....		3	
California Table Grape Commission.....			X
California Tree Fruit Agreement.....			X
California Walnut Commission.....			X
Cherry Marketing Institute, Inc.....		13	X
Chocolate Manufacturers Association of the USA.....		14	
Concord Grape Association.....		1	
Cotton Council International.....	6		
Del Monte Foods, Inc.....		1	
Dole Fresh Fruit Company.....		1	X
Eastern U.S. Agricultural and Food Export Council, Inc. (EUSAFEC).....	1	40	
Friday Canning Corporation.....		1	
Florida Department of Citrus.....		10	X
Hops Growers of America.....		5	
Kentucky Distillers Association.....		12	
Leather Industries of America, Inc.....	1		
Mid-America International Agri-Trade Council (MIATCO).....		27	
Mohair Council of America.....	1		
National Association of Animal Breeders.....	3	2	
National Association of Swine Records.....	1		
National Cottonseed Products Association.....	1		
National Dry Bean Council.....	3		
National Forest Products Association.....	17	12	
National Hay Association, Inc.....	2		
National Honey Board.....		9	
National Pasta Association.....		1	
National Peanut Council.....	4	3	
National Potato Promotion Board.....	10		
National Renderers Association, Inc.....	3		

Table 4. PARTICIPANTS IN EXPORT PROMOTION ACTIVITIES IN JAPAN: PARTICIPANT NAMES, NUMBER OF EXPORT PROMOTION ACTIVITIES, AND ORGANIZATIONS WITH OFFICES IN JAPAN, FISCAL YEAR 1990—Continued

Group/Organization/Company	Cooperator Activities	Targeted Export Assistance Activities	Offices in Japan
National Sunflower Association	6	6	
Nicolaysen Farms			X
Norpac Food Sales		1	
Northwest Cherry Growers			X
Papaya Administrative Committee	4		X
The Pillsbury Company		1	
Purebred Dairy Cattle Association	4		
Rice Council for Market Development		27	
Southern United States Trade Association (SUSTA)	1	32	
Sunkist Growers, Inc.		10	
Sunkist Pacific, Ltd.			X
Texas Produce Export Association		1	
Tobacco Associates, Inc.	1		
USA Dry Pea & Lentil Council, Inc.	7	3	X
USA Poultry & Egg Export Council	3	8	X
U.S. Beef Breeds Council	2		
U.S. Feed Grains Council	16	6	X
U.S. Hide, Skin & Leather Association	1		
U.S. Honey Board			X
U.S. Meat Export Federation	1	38	X
U.S. Mink Export Development Council		2	
U.S. Potato Board			X
U.S. Wheat Associates, Inc.	10	1	X
Western Wood Products Association			X
Western United States Agricultural Trade Association (WUSATA)	4	67	
Wine Institute		104	X
Totals	123	493	28

Source: U.S. Department of Agriculture. Foreign Agricultural Service. Marketing Programs Division. *Market Development Activities in Japan*. Compiled by Tim Rocke. April 17, 1990.

Each group, organization, or company provides an annual plan of activities to promote its food and agricultural products in foreign markets, including Japan. FAS then reviews and approves or denies the plans. If approved, FAS shares some of the cost for these activities. In FY90, about \$37.4 million is budgeted for these two programs.

Targeted Export Assistance Program (TEA)

The Food Security Act of 1985 authorized the TEA to counter or offset the adverse effect on exports of a U.S. agricultural commodity or food product as a result of a subsidy, import quota, or other unfair trade practice imposed by an importing country or foreign competitor.

The program is operated around annual plans that market agricultural products overseas. FAS approves the plans of private non-profit and State-related organizations for marketing a specific product. These applicants became known as TEA participants. TEA participants receive Commodity Credit Corporation (generic) certificates that represent the Federal share of funds available for use in their market promotion efforts. These certificates can be redeemed for CCC-owned commodities or sold for cash. Federal assistance,

matched in varying percentages by TEA participants, can go to support such activities as consumer advertising, sales demonstrations, public relations, trade servicing activities, participation in trade fairs and exhibits, and market research. TEA resources are also available to help organizations defray up to \$500,000 in expenses in defending countervailing duty actions instituted after January 1, 1986, in foreign countries to offset the benefits of U.S. farm price support programs. In FY90, FAS plans to sponsor 493 market promotion activities in Japan under TEA at a cost of \$35.6 million. TEA participants will be promoting over 40 products in overseas markets.¹¹

FAS also has evaluated the impact of TEA activities on the expansion of market demand in Japan. They found that for 7 products, TEA activities account for 45-70 percent of total export gains. These products include: avocados, grapes, cherries, grapefruit juice, fresh grapefruit, walnuts, and wine. There were not enough data on kiwifruit, honey, canned peaches, dried prunes, and frozen corn to do a proper analysis; and the data for peanut butter and salmon did not show a significant impact on sales from TEA activities.¹²

U.S. Market Development Cooperators Program (Cooperators)

FAS works with and assists farm commodity and producer organizations, all referred to as "cooperators," to develop, maintain, and expand foreign markets for U.S. agricultural commodities and food products. Similar to the TEA program, FAS approves cooperators' annual plans that guide market development activities, shares its expertise with them, and shares the costs. The 123 cooperator activities, that will be carried out in Japan under the fiscal year 1990 budget, will include advertising campaigns, trade missions, seminars, market and utilization surveys, and technical assistance, such as resolving problems that can threaten export sales.

FEDERAL NEGOTIATING EFFORTS TO OPEN JAPANESE FOOD AND AGRICULTURAL MARKETS

Under pressure from U.S. officials in bilateral trade talks and pressure from the dispute settlement system in the General Agreement on Tariffs and Trade (GATT), Japan has recently negotiated several market-opening agreements and a series of internal reforms that have complemented the changes in demand within Japan for agricultural products. However, Japan maintains a number of import barriers that prevent the United States from supplying greater amounts of food and fiber. Two Japanese policy objectives, national food security and the maintenance of rural income on a par with urban income, hinder U.S. export sales. In addition, Japan's farm policy structure has supported protectionist barriers that prevent some expansion of markets for some U.S. products.

¹¹ Data provided by Tim Rocke, Marketing Programs Division, Foreign Agricultural Service, U.S. Department of Agriculture, April 17, 1990.

¹² U.S. Department of Agriculture, Foreign Agricultural Service, *Evaluating the Impact of the TEA Program on Exports to Japan*. Unpublished study by Michael J. Dwyer and Kelly A. Kirby, Washington, April 1990.

BEEF AND CITRUS

On July 5, 1988, U.S. and Japanese trade negotiators signed a new agreement to liberalize Japan's restrictions on beef and citrus imports.¹³ The accord phases out, over a 3- to 6-year period, import quotas on these products. After the quotas are removed, Japan will impose higher tariffs on all these product imports. The net effect will be to continue to restrict imports, not by quantity control through quotas, but by price control, through higher tariffs.

For beef, the agreement provides a phased-in adjustment period with increased quotas for three years, higher tariffs, and future staged reductions. After liberalization, Japan will raise the current 25 percent tariff on beef to 70 percent by April 1, 1991, lower it to 60 percent by April 1, 1992, and fix it at 50 percent from April 1, 1993 onwards. Because of Japanese farmer concerns about an increase in competition from imports under the agreement, it also lays out a safeguard system for Japanese beef producers. If imports rise above 120 percent of stated levels, Japan can ask for consultations with the governments of beef-exporting countries and can levy an additional 25 percent tariff on beef imports for the rest of the fiscal year, if Japan and the supplying country cannot reach some compromise.

For citrus, the fresh orange and single-strength orange juice quotas ended on April 1, 1990, and the orange juice concentrate quota will end after April 1, 1991. Prior to the agreement, single-strength orange juice imports were banned, and concentrate had to be blended with domestic tangerine (mikan) juice. The agreement phased out the blending requirements for concentrate and provided separate access for imports of single strength and orange juice mixtures. New importers were permitted to take part in this liberalization.

The agreement played a large role in easing trade tensions between Japan and the United States. Japan's protection of its beef and citrus industries had become a symbol of the closed nature of Japan's market for agricultural products. The agreement expanded the Japanese market so that in FY89, the United States supplied 73 percent of Japanese imports of beef and 14 percent of its orange juice imports (table 3) as compared with 58 percent for beef and 4 percent for orange juice in the pre-agreement FY87. Total U.S. exports of these products to Japan has increased dramatically (table 5). U.S. trade specialists argue that greater exports of higher valued beef and citrus products have increased U.S. domestic income and employment in these sectors.

Most of the gain in trade under the agreement has come from expanded meat exports. In Japan, the quasi-governmental corporation, the Livestock Industry Promotion Corporation (LIPC), which purchases almost all imports of beef and controls its prices under the current Japanese system, has begun to slowly phase out its protectionist activity. A USDA study forecasts that meat imports could double or triple, and consumption could increase if all Japanese re-

¹³ A summary of the U.S.-Japan Beef and Citrus Agreement provisions can be found in Vogt, Donna U. *U.S.-Japanese Agricultural Trade Relations: Selected Information*. Report No. 89-655 ENR. Washington, Congressional Research Service, 1989. p. 10-11.

strictions on meat imports and distribution were eliminated.¹⁴ Some restrictions do remain, even when quotas are removed, so U.S. exports may not garner a large share in the increase in imports. Also, Australia might supply grain-fed beef competitively, which could offset some of the potential for increased U.S. imports.

Japanese farmers and some government agencies are also showing resistance to competition from imports. For example, there are conflicting interpretations over the actual level of demand for U.S. beef in Japan. The LIPC, the state trading organization, claims that retail beef sales are growing slowly and that warehouses are overflowing with imported beef. The U.S. industry's Meat Export Federation claims, however, that high retail prices have kept some beef off the market. All say that imports are rising in line with the agreed quota increases, and some think demand will continue to increase. In fact, Japanese companies are investing in slaughterhouses and ranches in the United States and Australia with the expectation that the demand will continue to rise.¹⁵

SELECTED PROCESSED FOODS

On August 2, 1988, U.S. and Japanese trade officials ended another long-standing trade dispute regarding Japanese import quotas. The agreement settled a case brought before a GATT panel regarding Japan's use of quotas to restrict agricultural imports on 11 categories of processed food products. In the agreement, Japan agreed to end quotas on 7 categories of processed foods by April 1, 1990 (which they have), and to provide a partial lifting of quotas, substantial increased access, or compensation on the other four products.

REMAINING RESTRICTIONS ON MARKET ACCESS

Although Japanese agricultural policy has been changing in respect to both economic and political factors, U.S. trade officials argue that many policies still prevent Japanese consumers from taking advantage of lower-priced U.S. commodities. Most U.S. trade officials claim that Japan could increase its purchases of agricultural products without disrupting its domestic production. In a similar vein, should Japan lower its import barriers and make its regulations less restrictive, many U.S. businesses believe they can compete with Japan's agricultural industries.

The Japanese believe that maintaining a domestic supply of basic foodstuffs is equally as important as securing a stable supply of less expensive food from abroad.¹⁶ Moreover, they argue, recent political instability in their country may slow down agricultural liberalization and market-opening moves.¹⁷

¹⁴ U.S. Department of Agriculture. Agriculture and Trade Analysis Division. Economic Research Service. *Demand for Meats in Japan: A Review and an Update of Elasticity Estimates*. ERS Staff Report No. AGES880525, by John H. Dyck. Washington, August 1988.

¹⁵ Rubinfen, Elizabeth. U.S. Slice of Japan Beef Market Grows, But Doesn't Sizzle, Amid Quota Accord. *Wall Street Journal*, November 16, 1989.

¹⁶ U.S. Department of Agriculture. Economic Research Service. Situation and Outlook Series. Pacific Rim: Agriculture and Trade Report. *U.S.-Japan Agricultural Trade Issues*, by Lois A. Caplan. RS-88-3, August 1988. Washington, 1988. p. 60.

¹⁷ Japan to Ask U.S. to Understand Delays in Farm Liberalization. *Journal of Commerce*, August 3, 1989. p. 7A.

Table 5. U.S. EXPORTS TO JAPAN OF BEEF, FRESH ORANGES, AND CITRUS JUICE, CALENDAR YEARS 1971 THROUGH 1989

(In millions of U.S. dollars)

Year	Beef, Fresh Chilled and Frozen	Fresh Oranges	Orange Juice	Grapefruit Juice	Total Beef and Citrus	Percent of Total U.S. Agricultural Exports to Japan
1971.....	\$1.5	\$1.6	\$0.2	\$0.2	\$3.5	0.3%
1972.....	2.0	3.4	0.6	0.2	6.2	0.4%
1973.....	35.0	4.3	0.4	0.4	40.1	1.3%
1974.....	17.8	4.3	1.0	0.4	23.5	0.7%
1975.....	26.3	7.7	0.6	0.5	35.1	1.1%
1976.....	42.2	8.1	1.1	0.7	52.1	1.5%
1977.....	52.4	7.6	1.6	0.9	62.5	1.6%
1978.....	95.8	22.4	1.8	1.6	121.6	2.7%
1979.....	129.1	29.0	2.4	2.6	163.1	3.1%
1980.....	131.1	27.8	1.4	3.9	164.2	2.7%
1981.....	155.9	44.4	1.2	7.8	209.3	3.2%
1982.....	230.0	51.3	1.3	4.9	287.5	5.2%
1983.....	251.3	51.9	1.7	4.9	309.8	5.0%
1984.....	328.5	61.5	2.4	8.2	394.8	5.8%
1985.....	356.0	72.6	3.2	11.4	438.5	8.1%
1986.....	480.8	68.0	2.2	11.8	548.7	10.7%
1987.....	557.6	79.5	2.7	16.0	640.0	11.5%
1988.....	829.3	73.1	10.3	21.2	933.9	12.2%
1989.....	1,001.9	83.5	18.6	26.9	1,130.9	13.9%

Source: U.S. Department of Commerce, Bureau of the Census. As found in *USOA, FATUS: Foreign Agricultural Trade of the United States*, January/February 1986. Update from Steven MacDonald, Economist, Economic Research Service, U.S. Department of Agriculture, April 19, 1990.

Even with recently reduced barriers to trade, many U.S. analysts and businesses continue to believe that additional policy changes to open Japanese markets further are needed. There continue to be three types of barriers hindering market access for agricultural products: 1) tariffs and quotas such as the ban on rice imports; 2) standards that prevent market access for health and sanitary reasons or for additives, and packaging requirements; and 3) structural barriers such as state trading monopolies and distribution systems that prevent the free flow of food and agricultural products throughout Japan.

TARIFFS AND QUOTAS

The 1988 beef and citrus accord will eliminate quotas on beef, oranges, and orange juice concentrate by 1992 and will replace quotas with tariffs. On April 1, 1990, Japan liberalized tariffs on 1,002 items, most of which were industrial products. Even with the recent reduction in several categories of tariffs, many agricultural products continue to face high tariffs. These include fruit juices, sugar confectioneries, vegetable oil, pork, poultry, eggs, processed food products, and wine.¹⁸

Japan also maintains quantitative import restrictions (quotas) on 17 categories of products. These cover dairy products; rice and wheat processed products; starch and sugar; pulses, peanuts, and

¹⁸ Office of the United States Trade Representative. 1990 National Trade Estimate Report on Foreign Trade Barriers. March 30, 1990. p. 108.

seaweed tubers; marine products such as fish and scallops; and other prepared foodstuffs of dairy, cereal, and seaweed.¹⁹

Many of these quotas protect domestic Japanese industries. For example, the Japanese food starch industry supports potato producers, and quotas have limited imports of corn and other feed grains over a certain amount. Imported corn must be flaked or ground and mixed with other feed grains to prevent it from being used for starch production. Licensed mills hold most of the quota. Such import limits have created higher costs for the Japanese livestock industries. Japan has announced reforms in the mixed feed sector, i.e., loosening of feed mill licensing requirements, allowing new mills to be built, and adding a new tariff-quota for corn for flaking. However, the policy changes have not yet taken place.

Rice

Japan continues to ban imports of rice (except for small amounts carried home by overseas travelers). The rice ban is one of the most publicized disputes between the United States and Japan over agricultural trade liberalization. The ban protects the incomes of a great majority of that nation's 4.3 million farm households.²⁰ Recent moves by Japan to reduce trade barriers to beef, citrus, and other high-value products raised hopes among U.S. rice farmers that Japan might be willing to change its prohibition of rice imports. However, such changes may not be forthcoming in the immediate future. A recent campaign slogan of the leading political party stated: "Not a single grain of rice will be imported!"

By banning rice imports, the Japanese Government is able to maintain its present policy of supporting producer rice prices, paying approximately five times the world price for rice. This support system was set up after World War II to insure the steady production of rice at a time of severe food shortages. It now provides Japanese farm households with living standards comparable to those of urban households.

Japanese consumers support the rice import ban because rice is their main dietary staple, it is part of the spiritual core of the Japanese culture, and they believe that the country should not depend on rice imports. The ruling political party looks to Japanese rice farmers for its political base. The opposition parties also have opposed rice imports. Many of Japan's rural citizens support the rice policy as ideally suited for part-time farmers cultivating small plots of land (83 percent of rice is grown by farmers cultivating less than one hectare of land). Japanese urban citizens support the policy because the rice program transfers income to the rural sector where many have family ties. Japanese environmentalists support the policy because paddy rice production controls erosion and flooding. The influential *Keidanren* (the voice of big business), however, favors dropping the import ban.

Given all this support for the current rice policy, the prospect for change is diminished. In both 1986 and 1988, U.S. rice interests un-

¹⁹ Ledwith, Lisa. Japanese International Agricultural Council. Updated data is as of April 1, 1990.

²⁰ Australia. Bureau of Agricultural and Resource Economics. *Japanese Agricultural Policies: A Time of Change*. Policy Monograph No. 3, Project 11325. Canberra, Australia, 1988. p. 134.

successfully filed two different Section 301 petitions under the Trade Act of 1974 to protest Japan's ban on rice imports. U.S. officials claim they will pursue a change in the Japanese rice policy in the current Uruguay Round of multilateral trade negotiations. Others point out that opening the Japanese market may benefit lower-cost rice-producing countries as much or more than U.S. producers.

STANDARDS

Implicit discrimination against imports is often found in "product standards." Food labeling requirements that have one nation's language on the label and no other is discriminatory under rules of the GATT. Japan has been accused of having "germy-mandered" standards to make them comparatively more difficult for foreign producers to comply to national labeling regulations. The process of obtaining clearance of a product subject to inspection, for health or safety reasons, may also add enough of a burden to imports to protect domestic industries and prevent market access for an imported agricultural product. Sometimes there is double-testing required.²¹

Even though the country of export may test and examine goods which are exported, the importing country might require this to be done again. In some cases it may have good reason to do so. The exporting nation's tests may be unreliable, or may not require as high a standard as that of the importing nation. If the exporting nation's tests are specifically for exports (and not for domestically consumed products also), that nation may not have a strong incentive to provide stringent testing, by contrast with the nation whose consumers will purchase the good. On the other hand, delay and costs of processing tests in the importing nation, whether due to understaffing of the testing agency or to a tacit understanding by that agency that "slowness helps the balance of trade," clearly are contrary to the liberal trading policies of the international system. Much of the controversy and, indeed, anger about Japan's apparent unwillingness to import focuses on practices such as those just mentioned. [p. 198]

There are other standards that appear to impede the flow of U.S. products into Japan. Some of these may be justified. For example, there continue to be complaints about heat-damaged kernels, low-protein content, and dockage on U.S. wheat exports. On corn exports, aflatoxin continues to be a small problem. Japan prohibits imports of fresh apples from the United States and other countries because of concerns about codling moth, fruit fly, and fire blight.²² Cherries remain restricted to a short marketing season to protect local growers.²³ Fumigation requirements on avocados to eliminate latania scale seem useless because avocados must go through cold storage shipment that kills the disease anyway. Peaches and kiwi-fruits have similar restrictions.

²¹ Jackson, John Howard. *The World Trading System: Law and Policy of International Economic Relations*. Cambridge, Mass., The MIT Press, 1989. p. 197.

²² U.S. Department of Agriculture. Foreign Agricultural Service. Agricultural Attache Report. Report No. JA0039. March 26, 1990. p. 21.

²³ U.S. Office of the United States Trade Representative. *1990 National Trade Estimate Report on Foreign Trade Barriers*. Washington, March 30, 1990. p. 113.

Many bilateral consultations have been held between U.S. and Japanese officials over food additives. Although, in 1985, Japan agreed to international harmonization of sanitary and phytosanitary regulations, its Ministry of Health and Welfare is slow to approve new additives. Nonapproval prevents many U.S. processed products from being exported to Japan.²⁴

STRUCTURAL IMPEDIMENTS

Japan's policies towards agricultural trade have been changing slowly in the last few years. The perceptions about these changes vary; U.S. officials perceive Japan as reluctant to open its markets,²⁵ while Japanese officials claim repeatedly that Japan's small island economy, with limited resources and a large population, must block competitive imports in order to maintain a certain level of self-sufficiency in food staples. Increasingly however, worldwide opinion considers that the food security rationale is in reality protection for politically powerful farmers and other beneficiaries of the Japanese food and fiber distribution system.

The economy of Japan is undergoing rapid structural change. Domestic demand is growing at a rapid rate due to deregulation of many sectors and to realignment of exchange rates. However, Japan exports about \$49 billion more to the United States than it imports. To accelerate structural adjustment, on July 14, 1989, President Bush and then-Prime Minister Sosuke Uno of Japan launched the Structural Impediments Initiative (SII). The SII stressed what changes both countries could make to correct the trade imbalance. The United States identified land use as one of the six areas in which it is seeking some type of policy adjustment. There is evidence that Japan may perhaps change land use policies because the Japanese agricultural sector is becoming less important to the overall Japanese economy, and some believe that the high rates of protection for farm products are becoming politically costly.

According to USDA analysts, opportunities are growing for young rural Japanese to increase wages in non-farm sectors. Also declining Japanese support prices for many agricultural products and increased pressure for competitive imports are making it increasingly less attractive for young workers to stay in farming. They also will increase the pressure for change in laws and regulations that allow farm consolidation. Dissatisfaction with the work of Zen-noh, the farmer supply cooperative, has already begun to manifest itself. As competition from imports increases, it is likely that farm incomes could be squeezed.²⁶

Japan's distribution system for food and agricultural products limits market penetration and increases the costs of doing business to new entrants. A strong exclusive relationship appears to continue among large numbers of small wholesalers and retailers. Such exclusivity has made it difficult for alcoholic beverages, chocolate

²⁴ Ibid.

²⁵ Auerbach, Stuart. Lawmakers Criticize Trade Pact with Japan. *Washington Post*, April 20, 1990, p. A8.

²⁶ U.S. Department of Agriculture, Economic Research Service. *The Basic Mechanisms of Japanese Farm Policy*. Miscellaneous Publication Number 1478, A USDA-ERS Briefing Booklet. [Washington] February 1990.

candy, and processed foods to penetrate Japan's markets.²⁷ The Japan Fair Trade Commission (JFTC) accords legal status to rules governing domestic industry premiums and other sales incentives. Such rules impair foreign firms ability to compete in the Japanese market. However, some of the rules are changing. Market opportunities are increasing for candy, tomato products, ice cream, chewing gum, liquor, chocolate, and margarine.²⁸

Several agricultural imports are controlled by state-run trading monopolies. For example, the Japanese Food Agency controls the purchase and marketing of domestic and imported wheat, rice and barley. The quotas on wheat and barley and the near-ban on rice imports protect small-scale, inefficient producers, as mentioned above.

Japanese leaders claim that their nation needs time to change its marketing structure for food. Meanwhile, trade officials both in the United States and around the world continue to exert pressure on their Japanese counterparts to open their agricultural markets.

²⁷ Telephone conversation with Daphne Sun, Marketing and Sales Services Manager for Asia and the Pacific. April 23, 1990. (201) 850-2607.

²⁸ USTR, *1990 National Trade Estimate Report*, p. 125.

CAPITAL FLOWS AND TRADE IMBALANCES: THE U.S.- JAPANESE INTERACTIONS

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CONTENTS

	Page
Summary	470
Introduction	470
The Evolution of the Japanese External Accounts	473
The Surge in the Japanese Trade Surplus in the 1980s	476
The Costs and Benefits to the United States of Foreign Purchases of U.S. Dollar Securities	479
Plausible Developments in the U.S.-Japanese Bilateral Relationship	482

SUMMARY

The dominant factor driving the Japanese external accounts for the last twenty years has been the excess supply of saving in Japan. In the late 1960s, this excess supply became reflected in a large Japanese payments surplus. In the early 1980s, in contrast, this excess supply led to both sharp increases in the prices of Japanese equities and real estate, and to large Japanese purchases of U.S. dollar securities and U.S. real assets.

Before Japanese investors could buy U.S. dollar securities and U.S. real assets, they first had to buy U.S. dollars in the foreign exchange market. Their purchases of dollars caused it to appreciate and induced a major increase in the U.S. trade deficit. The decline in U.S. income was significantly larger than the increase in U.S. net imports because of the multiplier effect. The U.S. fiscal deficit was significantly larger because corporate profits and wage and salary income increased less rapidly. Because the U.S. economy was operating with substantial excess capacity in tradable goods, my conclusion is that the costs to the United States of Japanese purchases of U.S. dollar securities and U.S. real assets have been substantially higher than the benefits.

INTRODUCTION

For more than twenty years the U.S. government and the Japanese government have been involved in a large number of incidents involving economic issues. Some involve trade in goods, some trade in services, some trade in securities, and some the right of establishment of Japanese subsidiaries by U.S. firms and of U.S. subsidi-

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aries by Japanese firms. The U.S. government usually has been the protagonist, seeking both to induce the Japanese government to limit export sales in the U.S. market of Japanese producers of particular types of goods, and to secure reductions in the formal and informal barriers that limit the entry of U.S. produced goods into Japan and the establishment of subsidiaries in Japan by U.S. firms.

In addition to these product specific and firm specific incidents, several macro-economic incidents have been associated with surges in Japanese net exports. In the late 1960s, Japan developed a large trade surplus and, as a result, a payments surplus that was many times larger than the annual increase in international reserves; in effect the Japanese yen had become a "scarce currency."² The reluctance of the Government of Japan to revalue the yen reflected several concerns: firms in many Japanese industries might lose share in various foreign markets, profits on export sales would be squeezed, and the decline in net exports would have negative impacts on income and employment in Japan. The maintenance of an undervalued parity for the Japanese yen was one of the most important factors in the breakdown of the Bretton Woods system of adjustable parities for national currencies.

In the late 1980s, the rhetoric between Tokyo and Washington escalated as the annual Japanese trade surplus reached \$96 billion and the U.S. trade deficit reached \$160 billion; the cumulative Japanese trade surplus for the 1980s was \$520 billion, and the cumulative U.S. trade deficit for the same decade was \$940 billion. The popular U.S. view is that Japanese trading practices are unfair—that Japanese producers dump their goods in foreign markets until they gain a dominant market position, while the entry of foreign goods into Japan is effectively denied by layers and layers of informal trade barriers—except for goods which are noncompetitive with those produced in Japan.³ The Japanese view is that the United States does not have the capacity to produce quality goods, because it is a tired, soft, and frivolous country, with a low savings rate, a high on-the-job absenteeism rate, and low levels of public education and literacy.

Both the Americans and the Japanese can cite abundant evidence for their claims. But the information content of these two sets of claims is irrelevant for explaining why the bilateral U.S.-Japanese trade imbalance surged in the 1980s; the Japanese did not suddenly become more protective, and the quality of goods produced in the United States did not decline sharply. Instead the development of this large trade imbalance reflects that the micro-market responses in Japan to changes in the macro-financial environment differed from the responses in the United States to these same changes.

The puzzle of the 1980s, especially in the first half of the decade, has been the sharp increase in the Japanese trade surplus. At about the same time, Japanese purchases of U.S. dollar securities

² The reference is to the scarce currency clause of the International Monetary Fund. A country's currency is scarce whenever the country has a large and persistent payments surplus.

³ The term "Japanese producers dump their goods in foreign markets" reflects the pervasive belief that the prices of many Japanese goods in Japanese retail markets are higher than the prices of these same goods in U.S. and other foreign retail markets.

and U.S. real assets increased rapidly. The Japanese—and many Americans—suggest that Japanese investors were providing financing for the U.S. trade deficit, attracted by the high interest rates on U.S. dollar securities, which in turn were a result of the large U.S. fiscal deficit.⁴ The competing view is that Japanese purchases of U.S. dollar securities and U.S. real assets induced the U.S. trade deficit. This argument is that Japan and many other countries configured their financial policies to achieve trade surpluses, and the U.S. trade balance changed to provide global consistency between the demand of these countries for trade surpluses and the supply of trade deficits from other countries.⁵

The debate between these competing explanations for the large trade imbalances involves two related issues: the first is whether the U.S. trade balance drives the U.S. capital account balance or instead whether the U.S. capital account balance drives the U.S. trade balance, and the second is whether the shock that led to the imbalances in trade and capital flows originated in the United States or instead in Japan and in several of the other countries with large trade surpluses.

The source of the imbalance in trade and capital flows is highlighted by the question, "What if the U.S. Treasury had an auction and the Japanese didn't come?" It seems that if the Japanese investors did not buy U.S. dollar securities, Japan would not have a trade surplus. And if Japan did not have a trade surplus, the United States would not have a trade deficit (or the U.S. trade deficit would be much smaller). And if the United States did not have a trade deficit, then given the level of U.S. consumer and government spending, the levels of U.S. employment and hence wage and salary income would be higher. Moreover, because excess capacity in U.S. manufacturing industry would be lower and the profit rate in U.S. manufacturing would be higher, the investments of U.S. firms and non-U.S. firms in plant and equipment in the United States would be higher. The tax revenues of the U.S. Treasury would be larger because both U.S. personal income and U.S. corporate profits would be higher, and U.S. Government expenditures would be lower because fewer workers would receive unemployment compensation payments.

Hence, by this logic, if Japanese investors did not buy U.S. Treasury securities, the U.S. fiscal deficit would be significantly smaller, and the amount of U.S. domestic saving available to finance the U.S. fiscal deficit would be larger. Interest rates on U.S. Treasury securities and on U.S. corporate securities in this counterfactual world would be higher—but only modestly higher, perhaps in the

⁴ Feldstein, Martin. Statement to the Committee on Foreign Relations. In U.S. Senate. Committee on Foreign Relations. *The United States in the Global Economy*. Hearing. 100th Cong., 2d Sess., February 28, 1988. Washington, 1988.

⁵ The paradox is that many of the countries that would like to have trade deficits cannot finance them, while few of the countries that can readily finance large trade deficits wish to have them. Also, there are precedents for the view that the United States provides global consistency. In the 1950s and the 1960s, Triffin and many others argued that the persistence of the U.S. payments deficit reflected that the demand for international reserve assets exceeded the supply. Johnson and Polak argued that the persistence of the U.S. payments deficit reflected the demand for domestic money in the countries with the surpluses exceeded the supply, and so these payments countries imported high powered reserves. See: Triffin, Robert. *Europe and the Money Muddle*. New Haven, Yale University Press, 1969.

range of 25 to 50 basis points—at most.⁶ A larger share of the interest payments of the U.S. Treasury would be to U.S. residents, many of whom would pay income tax on their larger interest incomes. And while the modestly higher level of interest rates on U.S. securities might deter some U.S. firms from investing in plant and equipment, the increase in the profit rate on both existing investments and new investments in the United States would have been several times larger than the increase in the interest rates on U.S. dollar securities.⁷

The key assumption implicit in the descriptive analysis in the previous several paragraphs is that the U.S. economy could have operated at higher levels of employment if the U.S. trade deficit had been smaller. The factual basis of this assumption is that the level of excess capacity in the U.S. economy was large relative to the size of U.S. trade deficit in virtually every year of the 1980s decade, except perhaps 1988.

The conclusion that the U.S. trade deficit would have been much smaller if Japanese investors had not purchased U.S. Treasury securities leads to three questions. The first is why Japanese investors have been eager to buy U.S. dollar securities and U.S. real assets—and why they have been willing to pay higher prices for these securities and assets than American investors. The second is whether on balance the United States has benefited from Japanese—and non-Japanese—purchases of U.S. dollar securities and U.S. real assets. The third is the probable development of Japanese purchases of U.S. dollar securities and U.S. real assets following the partial collapse of the Japanese equity market in the first three months of 1990.

This report is in four sections. The evolution of the Japanese external accounts is reviewed in the first section, with special attention to the causes of changes in the Japanese trade balance and in the U.S. trade balance. The relationship between the increase in the Japanese trade surplus and the increases in the prices of Japanese equities and real estate in the 1980s is discussed in the second section. Then the costs and benefits to the United States of foreign purchases of U.S. dollar securities and U.S. real assets are evaluated in the third section. The impacts on the United States of the probable development of Japanese external accounts are summarized in the fourth section.

THE EVOLUTION OF THE JAPANESE EXTERNAL ACCOUNTS

One striking feature of the Japanese external accounts is the persistence of annual trade surpluses since the late 1960s. In most years in the 1950s and the early 1960s, Japan had a current account deficit, whose size was limited by the availability of external finance for both the Japanese commercial banks and various gov-

⁶ Moreover the rate of growth of the U.S. Federal debt in the counterfactual situation would be smaller. And as a result, the differential between the actual interest rates on U.S. government securities and the interest rates on U.S. Government securities in the latter half of the 1980s in this counterfactual world would have been smaller.

⁷ I feel that the common error in many analyses of the U.S. macro-economy is the assumption that the level of interest rates on U.S. dollar securities is determined by the U.S. fiscal deficit, a *flow*, rather than by the U.S. inflation rate and the demand of investors for the *stock* of U.S. dollar securities. The interest rate is the price of a *stock* of debt.

ernment-owned agencies like the Export-Import Bank of Japan and the Long-Term Credit Bank of Japan. The Japanese financial system was managed so that real interest rates were low or negative, which encouraged both high levels of investment in new plant and equipment and a high household saving rate. As a result, Japan achieved an exceptionally high rate of growth of per capita income.⁸ Demand within Japan in most years usually was larger than domestic supply capabilities, with the consequence that the Japanese trade deficit persisted. When the credit lines of Japanese financial institutions with foreign lenders were fully utilized or nearly so, the Bank of Japan adopted contractive policies to dampen the growth of domestic demand; exports spurted, imports declined as firms reduced inventories of imported raw materials, and Japan quickly developed a trade surplus. Some foreign loans were repaid, credit lines from foreign lenders then were expanded, and Japanese monetary policy soon was relaxed; demand increased, imports surged, and the Japanese trade deficit soon reappeared.

Japan could have financed a larger trade deficit during this period if foreign investors had greater access to Japanese equities and real assets. But an elaborate set of regulations limited both foreign purchases of equities of Japanese firms and foreign direct investments in Japan.⁹

This period of the cyclical changes in the Japanese trade balance and increasing international indebtedness ended in the mid-1960s. Then the growth in both Japan's production and its productive capacity began to exceed the growth in its domestic demand, and the Japanese trade surplus surged. The rate of economic growth in Japan became limited by the growth of demand—foreign as well as domestic—rather than by supply; Japanese firms could have produced more if they could have sold more. The growth of Japanese domestic investment in plant and equipment slowed primarily because the growth of domestic consumption had slowed. Access to foreign markets was constrained.

In the 1970s, Japan adjusted to the sharp increases in the price of oil and in its oil import bills, first of \$15 billion a year, and then of \$40 billion a year, with modest cost to the rate of growth of real income. In effect, part of the high level of national savings implicit in the what otherwise would have been a large Japanese trade surplus was transferred to various oil exporting countries. Despite the increase in its oil import bill, the Japanese trade surplus persisted.¹⁰

The Japanese yen depreciated from Y190 to the U.S. dollar at the end of 1979 to Y250 to the U.S. dollar at the end of 1984, as a result of a surge in Japanese purchases of U.S. dollar securities. Interest rates on Japanese yen securities were significantly below interest rates on U.S. dollar securities in the late 1970s. This occurred, in part, because a less rapid increase in the inflation rate in Japan in 1978 and 1979 meant a less rapid increase in nominal

⁸ The assumption implicit in the statement that the low real interest encouraged a high household saving rate is that the negative income effect dominates the price effect; Japanese households saved to achieve a target level of wealth in relation to income.

⁹ The return to equity investors in Japan—as in most rapidly growing countries—was phenomenally high.

¹⁰ Japan had current account deficits in several years in the 1970s.

interest rates in Japan than in the United States and, in part, because the comprehensive set of financial regulations limited increases in interest rates on securities denominated in the Japanese yen. In the early 1980s Japan began to liberalize these financial regulations on domestic and external financial transactions, when interest rates on offshore deposits denominated in the Japanese yen were three to four hundred basis points higher than on domestic yen. Financial liberalization enabled Japanese investors to take advantage of higher yields available on offshore yen deposits and on U.S. dollar securities.¹¹

Japanese investors first had to buy U.S. dollars in the foreign exchange market before they could buy U.S. dollar securities, so the Japanese yen depreciated. The Japanese trade surplus increased sharply as prices of Japanese goods fell relative to the prices of U.S. goods both in the U.S. market and in various foreign markets. The expansion of net exports from Japan was a major factor in the growth of the economy in the 1980–1985 period; perhaps one-third of growth in demand was a result of the increase in net exports.

The Japanese yen appreciated from ¥250 to the U.S. dollar at the end of 1984 to ¥124 to the U.S. dollar at the end of 1987. Nevertheless, the decline in the Japanese trade surplus was modest, and then primarily as a result of the increase in imports; Japanese exports continued to increase.

Hence, changes in the Japanese trade surplus appear asymmetric with respect to changes in the foreign exchange value of the Japanese yen. When the Japanese yen was depreciating, the change in the Japanese trade surplus was larger than when the Japanese yen was appreciating by a comparable amount. That the Japanese trade surplus remained large despite the sharp change in the exchange rate reflected that as the Japanese yen appreciated, Japanese investors had a stronger incentive to buy U.S. dollar securities, since for any given interest rate differential, the possible loss from the further appreciation of the Japanese yen would be smaller.

When compared with the trade balances of other countries, the Japanese trade balance appears less sensitive to changes in the international competitive position of firms producing within Japan, and more sensitive to variations in the rate of growth of domestic demand. Shocks such as the OPEC oil price increases and the sharp changes in the foreign exchange value of the Japanese yen have a smaller impact on output and employment. The unemployment rate in Japan has varied only modestly; employment is less variable with respect to changes in the level of domestic demand than in most other industrial countries. The stability of the demand for labor may reflect the commitment to lifetime employment—even though the share of the labor force that has a lifetime employment commitment is low.¹² The adjustments to these varied

¹¹ Interest rates on U.S. dollar securities were below interest rates on Japanese yen securities until 1977.

¹² Aliber, Robert Z. *The Evolution of the Japanese Trade Surplus*. In Yamamura, Kojo, ed. *Japanese Investments in the United States: Should We Be Concerned?* Seattle, Society of Japanese Studies, 1989. pp. 227–52.

external shocks primarily involves changes in the foreign exchange value of the Japanese yen.

The inference from the variability of the Japanese trade surplus is that if domestic demand in Japan declines, firms producing in Japan increase their exports as long as revenues per unit of sales exceed variable costs per unit of sales—and variable costs per unit of sales appear low as a share of total costs, more so than in most other countries. Japanese firms (like firms in many countries) engage extensively in price discrimination in foreign markets—except when quotas limit sales in foreign markets. Japanese firms produce at or near their capacity levels, and alter their pricing and marketing strategies in foreign markets to increase export sales when domestic demand declines relative to supply capabilities. When the Japanese yen appreciates, these firms are reluctant to raise selling prices abroad lest they lose market share, and so they cut the effective yen prices to limit increases in prices of their goods in foreign markets.

Changes in the Japanese trade surplus are consistent with the traditional Keynesian absorption model of the balance of payments; whereas this model highlights the positive relationship between changes in national income and changes in imports, the dominant relationship in Japan is a negative one between the growth in domestic demand and the growth in export demand. When Japanese domestic demand is growing more rapidly than productive capacity, the Japanese trade surplus declines, because on the margin Japanese firms prefer to sell at home. Presumably the profit rate on domestic sales—in the protected home market—is higher than the profit rate in foreign markets.¹³ But if the growth in domestic demand is sluggish relative to the growth in productive capacity, these firms increase their foreign sales. In contrast, producers in the United States and other Western countries might react to the same demand shock by reducing production and employment, because variable costs per unit of sales are much higher relative to revenues per unit of sales.

THE SURGE IN THE JAPANESE TRADE SURPLUS IN THE 1980S

The key idea of the previous section is that the major determinant of changes in the Japanese trade balance is the relationship between changes in domestic demand in Japan and changes in productive capacity. Japanese firms seek to produce at or near their capacity levels, and those goods not sold at home are sold abroad at the prices necessary to clear the market. The theme of this section is that the changes in the foreign exchange value of the Japanese yen are primarily determined by changes in the Japanese purchases of foreign securities and real assets, as Japanese investors respond to changes in yield differentials or anticipated yield differentials. Modest changes in the Japanese demand for foreign securities and real assets are associated with large changes in the foreign exchange value of the Japanese yen, because both Japanese com-

¹³ Profit rates in Japan appear low. However, the inference from the ability of Japanese firms to finance substantial new investments from internal cash flow is that profit rates are significantly higher than they seem.

modity imports and exports are insensitive to changes in the foreign exchange value of the Japanese yen.

Japan's trade surplus increased from \$2 billion in 1980 to \$97 billion in 1987; Japan's bilateral trade surplus with the United States increased from \$7 billion in 1980 to \$52 billion in 1987. The increase in Japan's trade surplus with the United States was significantly larger than \$45 billion, since many of the countries with which Japan has bilateral trade surpluses (including Taiwan, Korea, and Hong Kong) also have bilateral trade surpluses with the United States. Thus, Japan has a large trade surplus with Taiwan, and Taiwan has a large trade surplus with the United States; Taiwanese exports to the United States embody many components that firms in Taiwan have imported from Japan. Japanese investors have been buyers of securities and real assets in Taiwan, so Taiwan developed a capital account surplus and a trade deficit with Japan. However, Taiwanese sellers of assets to Japanese investors used their cash receipts to buy U.S. dollar securities and U.S. real assets, so Taiwan developed both a capital account deficit and a trade surplus with the United States. And its trade surplus with the United States was larger because of its trade deficit with Japan.¹⁴ Similar statements can be made about triangular patterns of trade in goods and in securities of Korea, Hong Kong, and Singapore with the United States and Japan.

The surge in the Japanese trade surplus in the first half of the 1980s reflects the same factors that explain the increase in the prices of Japanese equities by a factor of six or seven in the 1980s and a comparable increase in the price of Japanese real estate. As the prices of Japanese yen equities and real estate increased sharply, the anticipated returns on these equities and real assets declined, and some Japanese investors sought the higher yields available on U.S. dollar securities and U.S. real assets.

The surge in interest rates on U.S. dollar securities in the late 1970s and early 1980s also contributed to Japanese purchases of U.S. dollar securities and U.S. real assets; "as the United States sneezed, Japan and many other countries caught a cold." Interest rates on securities denominated in the Japanese yen and many other foreign currencies increased in sympathy with the increase in interest rates on securities denominated in the U.S. dollar, although usually by a smaller amount. The consequence of this increase in interest rates was a worldwide recession; business investment in plant and equipment declined in virtually every country.

Throughout the 1980s, Japanese investors bought U.S. dollar securities and subsequently U.S. real assets because the anticipated yields were so much higher than on comparable Japanese securities and real assets. In the early 1980s, U.S. dollar securities became especially attractive as the anticipated U.S. inflation rate declined; the revaluation gain that Japanese investors realized on their purchases of U.S. dollar securities was a larger component of their incremental annual return than the excess of interest rates on U.S. dollar securities over interest rates on comparable yen securities. Moreover, some Japanese financial institutions, such as

¹⁴ Note that Japanese purchases of Taiwanese securities cause the Japanese yen to depreciate relative to the New Taiwan dollar.

the life insurance companies and trust banks, sought to diversify the currency composition of their financial wealth by acquiring securities denominated in the U.S. dollar or in other foreign currencies.¹⁵

The increases in the prices of these Japanese yen securities and real assets in the 1980s occurred in two stages. In the 1982–1985 period, increases in prices of these securities and assets were part of the global increase in the prices of financial assets, as the anticipated inflation rates in most industrial countries were revised downward and as interest rates on securities denominated in most currencies declined. From 1986 or 1987 on to the end of 1989, the increases in the prices of Japanese equities and of Japanese real assets were a part of a financial bubble, as I see it. The rate of increase in the prices of these assets could not be justified under any plausible economic scenario.¹⁶ The bubble began soon after the Japanese yen began to appreciate in response both to a more expansive U.S. monetary policy and an increase in the anticipated U.S. inflation rate, and the recognition that the U.S. trade deficit was too large to be sustained. The Bank of Japan began to intervene extensively in the foreign exchange market in 1987 to limit the appreciation of the Japanese yen, with the consequence that the money supply in Japan began to increase at a rapid rate; the increase in the liquidity in Japanese economy resulted in the increase in demand for these real assets. The combination of the sharp appreciation of the Japanese yen and the increase in the money supply in Japan in the 1985–1988 period contributed both to a significant decline in interest rates on Japanese securities—which troughed in the second quarter of 1988—and to further increases in the prices of Japanese equities and real estate.¹⁷

Increases in the prices of Japanese equities and real estate in the 1985–1989 period help explain why the Japanese trade surplus declined modestly, despite the sharp appreciation of the Japanese yen. Japanese investors continued to buy U.S. dollar securities and U.S. real assets partly because of anticipated returns were so much higher than on comparable Japanese yen securities and real assets. Moreover, the surge in prices of Japanese equities and real estate reduced the currency diversification of the portfolios of Japanese institutional investors, and so they continued to buy U.S. dollar securities and U.S. real assets to maintain the currency diversification of their portfolios.

The surges in prices of Japanese equities and real estate in the 1980s had a massive positive wealth effect on Japanese consumers and investors. The ratio of the market value of Japanese equities to Japanese national income increased from 70 percent in 1980 to 170 percent in 1989; a comparable statement can be made for the increase in the “market value” of Japanese real estate. This surge in wealth led to a sharp increase in spending by both business firms

¹⁵ Salomon Brothers. *Japanese Asset Allocation in Fiscal 1990*. New York, April 3, 1990.

¹⁶ Japanese equities are “priced” by the sales practices of the major investment houses in Japan. These firms generate a large part of their net income from retail sales commissions. Their customers are content to buy these equities as long as Japanese equity prices continue to increase.

¹⁷ The larger the decline in the nominal interest rate, the more rapid the increase in the prices of Japanese equities and Japanese real estate.

and households; in effect Japanese investors traded "overpriced securities" and "overpriced real estate" for "overpriced art."¹⁸ Aggregate spending was increasing at a rate modestly more rapid than the increase in the supply capabilities of the Japanese economy, so the Japanese trade surplus declined, largely because of increased imports of luxury manufactures—many of which had no good Japanese counterparts.

The inflation rate in Japan began to increase in mid-1988, and the yen began to depreciate in the foreign exchange market. Interest rates on securities denominated in the Japanese yen began to increase in response to anticipations of both further increases in the inflation rate and further depreciation of the Japanese yen.¹⁹

Nevertheless equity prices in Japan rose by 33 percent between the second quarter of 1988 and the end of 1989.²⁰ The events in the United States in the Summer of 1987 provide an analogy, for the U.S. equity market then became "disconnected" from the U.S. bond market; prices of U.S. equities increased by 10 percent while interest rates on long-term U.S. bonds increased sharply within a three-month period. The difference was that changes in prices of Japanese equities were disconnected from changes in the prices of Japanese yen securities for 18 months.

As interest rates on yen securities surged in 1990, equity prices began to decline, and they fell by 30 percent in the first four months of 1990. Presumably, real estate prices have declined. Nevertheless, equity prices and real estate prices remain significantly higher than long-run equilibrium values. The paradox is that the disequilibrium in Japanese equity prices is larger at the end of May 1990 than at the end of December 1989, because interest rates on Japanese yen securities are so much higher.

THE COSTS AND BENEFITS TO THE UNITED STATES OF FOREIGN PURCHASES OF U.S. DOLLAR SECURITIES ²¹

The change in the U.S. international investment position in the 1980s amounted to \$750 billion, primarily because Japanese and other foreign investors (both official and non-official) bought nearly \$2,000 billion of U.S. dollar securities and U.S. real assets.²² U.S.-owned foreign assets increased by \$500 billion, which included the reinvestment of the profits of the foreign subsidiaries of U.S. firms.

The traditional economic argument is that a capital importing country like the United States in the 1980s benefits from foreign investment because the productivity of the new investments financed by the foreign capital exceeds the interest rate paid the for-

¹⁸ Japanese investors financed purchases of Van Goghs, Monets, and other Impressionists by borrowing from Japanese commercial banks against the appreciated value of their equities and real estate.

¹⁹ The decline in the Japanese trade surplus was larger when measured in yen than in U.S. dollars because of the appreciation of the yen.

²⁰ This "complex of reasons" includes a depreciation of the Japanese yen and an increase in the inflation rate in Japan.

²¹ This section is derived from my working paper, *The Benefits and Costs of Foreign Investment in the United States*. Mimeo. Chicago, 1989.

²² This estimate is derived from the balance of payments data, and almost certainly overstates the change because the increases in the values of U.S. owned foreign equities and real assets was significantly larger than the increase in value for foreign owned real assets and equities.

eign investors.²³ This statement is the multi-country extension of the domestic proposition that a firm should borrow as long as the incremental increase in its profits realized from the new investments financed with borrowed funds exceeds the increase in its interest payments. Moreover, the welfare component of the terms-of-trade effects is relevant, both the positive effect as the inflow of funds to the capital-importing country leads to an appreciation of its currency and the negative effect as its currency depreciates in response to a decline in this inflow and then as interest and profit payments are distributed to the investors in the capital exporting countries. The argument that the capital-importing country gains from foreign investment, like the general argument for free trade, implicitly assumes both continuous full employment and a costless shift of resources between industries that produce tradable goods and those that produce non-tradable goods in response to induced changes in its trade surplus.

The relevance of the conclusion from this traditional argument to the United States in the 1980s can be questioned because two of the central assumptions were not valid. The United States was not at full employment. Significant costs were incurred as U.S. productive resources became unemployed and as resources shifted from production of tradable goods in the United States to production of non-tradable goods.

Japanese foreign investment in the United States has taken two distinct forms: portfolio investments of Japanese life insurance companies and trust banks and direct foreign investment. The latter includes purchases of established U.S. firms, purchases of productive facilities in the United States from non-U.S. owners, and new greenfield investments, which have been especially important in automobiles and in automotive supply. Japanese direct investment in the United States, like U.S. imports of automobiles and electronics from Japan, has been a great benefit to U.S. consumers both in the form of the increase in the menu of goods available in the market place and the high quality of Japanese goods, and from the competitive response of U.S. producers to these developments. For example, the quality of automobiles produced by General Motors, Ford, and Chrysler is much improved.

The comparison of the costs and benefits to the United States of Japanese purchases of U.S. dollar securities and U.S. real assets involves a complex present value calculation, both because the costs and the benefits occur at different times and because the factual case must be evaluated against the counterfactual case. One benefit to the United States in the early 1980s from foreign investment was the improvement in the U.S. terms of trade as the U.S. dollar appreciated. One of the costs has been displacement of U.S. demand from U.S. goods to Japanese goods as the prices of Japanese goods declined relative to the prices of U.S. goods. Hence, there was a less rapid increase in U.S. production and employment given the increase in U.S. demand. This present value calculation involves a comparison of levels of U.S. consumption in the 1980s

²³ The classic article is G.D.A. MacDougall's *The Benefits and Costs of Foreign Investment from Abroad: A Theoretical Approach*, reprinted in Caves, Richard E., and Harry G. Johnson, eds. *Readings in International Economics*. Homewood, Illinois, Richard D. Irwin, Inc., 1968.

when the United States had a large trade deficit with the levels of U.S. consumption in the much more distant years when the United States must develop a trade surplus, so the transfer of part of the net flow of interest and dividend payments to the foreign owners of U.S. dollar securities and U.S. real assets can be effected.²⁴ And this present value of the actual situation must be compared with the present value of U.S. consumption under the counterfactual assumptions of smaller levels of foreign purchases of U.S. dollar securities and U.S. real assets in the 1980s.

The completion of this cost-benefit calculation involves distinguishing Japanese purchases of U.S. dollar securities and U.S. real assets from the financing of these purchases. Many Japanese purchases of U.S. dollar securities and U.S. real assets are financed with funds borrowed in the United States or in the London dollar market, while other purchases were financed with Japanese yen funds. The source of financing is important to the cost-benefit analysis, for non-dollar financing of Japanese purchases of U.S. dollar securities and U.S. real assets has an impact on the U.S. economy different from the impact of U.S. dollar financing, because of the induced appreciation of the U.S. dollar and the resulting increase in the U.S. trade deficit.²⁵

As long as Japanese investors buy U.S. dollar securities and U.S. real assets with non-dollar funds, the U.S. dollar has a higher value in the foreign exchange market, and the U.S. trade deficit is larger. If the induced increase in the U.S. trade deficit occurs at a time when the U.S. economy is operating below full employment or capacity levels of U.S. production, there is a displacement effect; the levels of U.S. production and employment decline, or given the increase in domestic spending increase at a less rapid rate. The induced increase in the U.S. trade deficit that resulted from Japanese purchases of U.S. dollar securities and U.S. real assets in the early 1980s had a dampening effect on the rate of growth of U.S. domestic production, and, hence, on the level of investment in U.S. plant and equipment by U.S. firms and non-U.S. firms. Because of the induced overvaluation of the U.S. dollar, some U.S. productive resources were scrapped prematurely. The increase in the net imports meant a lower level of U.S. corporate profits. Moreover, the U.S. Treasury incurred larger fiscal deficits because the less rapid growth in production and employment meant a less rapid increase in U.S. fiscal revenues.

The welfare loss to U.S. residents from this displacement effect—the decline in the levels of employment and production, both direct and induced—is many times larger than the benefit from the improvement in U.S. terms of trade. This displacement effect is both large and immediate, and dominates any benefits associated with lower import prices. The payment of interest and profits to Japanese investors and other foreign investors will prove a significant cost. Moreover, U.S. tax collected on this income will be substan-

²⁴ Otherwise Japanese investors would eventually own all U.S. securities and real assets, which is not a very likely proposition.

²⁵ Moreover, London dollar financing may have an exchange rate impact to the extent that the agents obtained London dollars by selling Japanese yen. There is a very large hole in the data about capital inflows to Great Britain.

tially smaller than if this same income were realized by U.S. investors.²⁶

Hence, as long as the U.S. economy was operating with excess capacity, the costs to the United States of Japanese purchases of U.S. dollar securities and U.S. real assets exceeded the benefits. This loss for the 1980s was significantly larger than the induced increase in the U.S. trade deficit because of the impact of the reduction in net exports on income of the U.S. factors of production that are the suppliers to those U.S. firms that produce import competing goods.

PLAUSIBLE DEVELOPMENTS IN THE U.S.-JAPANESE BILATERAL RELATIONSHIP

The United States and Japan are—to borrow a metaphor—like two large economic scorpions in a small bottle. Each country can export significant economic shocks to the other. In the early 1970s, the United States exported an inflationary shock to Japan. Throughout most of the 1980s Japan has exported a large deflationary shock on the United States through a large trade surplus.

Currently the United States has a large trade deficit and a large current account deficit and is operating near full employment. The U.S. trade deficit is too large to be sustainable. The United States has a modest fiscal deficit, which offsets the contractive impact on domestic employment and production of the large trade deficit. Japan has been operating at full employment—or overfull employment—with a trade surplus that is 2 plus percent of its national income and a current account surplus that is nearly 3 percent of its GNP. The Japanese trade surplus has declined significantly, especially when measured in Japanese yen. Nevertheless, the trade surplus remains high given that Japan eventually must move to a trade deficit because its international creditor role means that its receipts of interest and dividends will increase rapidly.

One principal argument in the adjustment process involves the size of the Japanese trade surplus; the theme of the first section of this paper is that the this trade surplus is a function of the growth in domestic demand in Japan relative to its supply capabilities. The variability of domestic demand growth is larger than the variability in the growth of Japanese supply capabilities, with the consequence that the trade surplus varies inversely with the growth of domestic demand. The implication of the recent surge in interest rates in Japan is that the growth of domestic demand in Japan is likely to slow. The theme of the second section is that a sharp slowdown in economic growth in Japan has resulted in excess saving, which in turn led to large Japanese purchases of U.S. dollar securities and U.S. real assets. The yield differentials have been declining; the implication is that Japanese purchases of U.S. dollar securities will decline rapidly—although there may remain financial incentives for Japanese investors to buy U.S. real assets.

The Japanese financial markets appear in disequilibrium, in that the level of Japanese equity prices remains excessively high rela-

²⁶ The U.S. subsidiaries of Japanese firms appear on average to pay very little in U.S. corporate taxes. The presumption is that transfer pricing is used to shift profits from the United States to Japan or to some other foreign tax jurisdiction. See *New York Times*, July 11, 1990.

tive to the prevailing level of profits of Japanese firms and the prospective rate of growth of corporate profits in Japan, and the prospective levels of interest rates on Japanese yen securities. The profits of Japanese firms are likely to increase at about the rate of growth of the Japanese economy, which might be four percent a year in real terms at most, and which are likely to grow at a less rapid rate. The question then becomes the choice of the interest rate at which the rational investor should discount the anticipated rate of growth of Japanese profits; this interest rate must be below the rate of growth of profits, or the system is unstable. Also needed is an estimate of the premium that the marginal investors require or demand for holding the equities of Japanese firms rather than debt denominated in Japanese yen.

With the Nikkei 225 at 30,000, the dividend yield is one-half of one percent. With interest rates on Japanese government bonds at 6.50 percent, the price of Japanese equities would have to increase at a rate of 6 percent a year to provide a total return equal to the return on Japanese yen debt. Corporate profits would have to increase at $6\frac{1}{2}$ percent a year—which might be consistent with an inflation rate of 3 percent and real growth of the economy of $3\frac{1}{2}$ percent. This arithmetic describes a knife-edge equilibrium; holders of Japanese equities do not receive a premium to compensate for holding equities rather than bonds denominated in the Japanese yen. Any increase in the interest rate on Japanese debt securities suggests that the existing level of equity prices are consistent with equilibrium only at a more rapid rate of growth of profits, which does not seem feasible. Hence, any further increase in interest rates is likely to put further downward pressure on Japanese equity prices.

The implication is that the Japanese economy is likely to be subject to an abrupt decline in equity prices and land prices. The negative wealth effect associated with this decline, should it occur, could be large. The levels of spending of Japanese households and of business firms would decline or increase less rapidly. Expenditures on luxuries—and luxury imports—would decline. Personal saving might increase. Moreover, as investment in plant and equipment of the last several years comes on stream, excess capacity will increase; Japanese firms will increase export sales as growth in capacity exceeds the growth of demand. The Japanese trade surplus will tend to increase—just as the United States seeks to reduce its trade deficit.

Japanese purchases of U.S. dollar securities and U.S. real assets would likely decline in a financial environment characterized by high real interest rates on Japanese yen securities and a higher cost of capital. The combination of tendencies toward a larger trade surplus and a smaller capital outflow would lead to a higher foreign exchange value of the Japanese yen.

A JAPAN DOMINATED ASIA-PACIFIC REGION?

By Richard P. Cronin ¹

CONTENTS

	Page
Japan's Role in the Evolving Asia-Pacific Economic Order	484
Japan's Emergence as the "Core Economy" of the Asia-Pacific Region	485
Surge of Japanese Investment Since 1985	485
"Flying Geese" and the "New Division of Labor"	487
Coordination of Aid and Investment Policies	488
The Investment-Trade Nexus	488
Emerging Network of Regional Production	488
The ASEAN Countries	489
The NIEs	490
Problems in Japan's Relationships With the Asia-Pacific Countries	492
Discriminatory Trade Relationships	492
Ambiguous Attitudes Towards the Regionalization of Production Under Japanese Directing Auspices	493
Desire for a More Equal Technological Division of Labor	494
Japan Dominated Asia-Pacific Region?	495
Emergence of a Japan-Centered Regional Trade Bloc?	496

JAPAN'S ROLE IN THE EVOLVING ASIA-PACIFIC ECONOMIC ORDER ²

The decade of the 1980s saw a quantum increase in the size of the Asia-Pacific economies and their role in world trade. Intra-Asian trade is growing rapidly in response to new patterns of off-shore investment by Japan and the Newly Industrialized Economies (NIEs) of South Korea, Taiwan, Hong Kong and Singapore and the resultant growth of export-oriented manufacturing and incomes. Trade among 15 major Asian economies amounted to \$234 billion in 1988, the second straight year of increases in the 30-31 percent range. Exports within Asia exceeded exports from Asia to North America, and intra-Asian trade is now growing faster than trans-Pacific trade.³ Trade among the NIEs alone totaled \$23.3 billion in 1988, a 46 percent increase over 1987.⁴

To a considerable extent, Japan and the United have played complementary roles in the rapid economic growth of the Asia-Pacific region. Japan has provided a successful growth model, capital and manufacturing technology. Increasingly Japan is also a consumer of regional exports, although, as will be seen, this continues to be a

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² This paper is based on a broader study by the author, *Japan's Expanding Role and Influence in the Asia-Pacific Region: Implications for U.S. Interests and Policy*. Report No. 90-432 F. Washington, Congressional Research Service, 1990. 79 p.

³ Asia Development Bank (ADB). *Asian Development Outlook*, 1990. Manila, 1990. p.39.

⁴ ADB, *Asia Development Outlook*, 1990, p. 39.

weak link in Japan's relationship with the rest of the East and Southeast Asia region. U.S. economic assistance, investment by U.S. multinationals and related technology transfers must also be counted as key stimulants to the rise of the Asian NIEs and the recent "takeoff" of some Southeast Asian economies. Even more important, however, the vast and comparatively open U.S. market has given the entire Asia-Pacific region its dynamism.⁵ Both the NIEs and the Association of Southeast Asian Nations (ASEAN) have played their part through economic reforms emphasizing free markets, privatization of state-owned enterprises, export-led growth and favorable terms for foreign investment.

JAPAN'S EMERGENCE AS THE "CORE ECONOMY" OF THE ASIA-PACIFIC REGION

Notwithstanding the multifactor basis of the rapid development of the Asia-Pacific region, Japan has emerged in the past five years or so as the financial and economic nerve center of the region, and the main catalyst of an emerging structure of regional economic integration. Japan's post-1985 emergence as the leading source of capital, capital goods and technology, and as an increasingly important market for manufactured goods, has made it the "core economy" of the region. Private Japanese business investment is fueling rapid growth in the NIEs and would-be NIEs such as Thailand and Malaysia, while bilateral economic assistance underpins many weaker economies in Asia and the Pacific islands.

SURGE OF JAPANESE INVESTMENT SINCE 1985

New Japanese investment in the Asia-Pacific region totaled \$8.2 billion in Japanese fiscal year 1988, four times more than the 1985 figure and nearly twice the investment of U.S. companies during approximately the same year (calendar basis). A high proportion of this investment was related to the establishment of new manufacturing facilities in East and Southeast Asia.⁶ (See table 1, below).

The surge of Japanese manufacturing investment in Asia is largely a phenomenon of the sharp rise of the yen during 1986 and 1987, which sent businesses scurrying to low-wage areas of Asia to lower their production costs and remain competitive with producers in the NIEs, whose currencies had appreciated less against the dollar.⁷ In data provided to the Japanese Ministry of Industry and Trade (MITI) by companies investing overseas during 1987, 66.2 percent of the companies investing in Asia cited the goal of enlarging market shares in the host country or *third countries* (emphasis added) and 54.7 percent cited the objective of reducing labor costs.⁸

⁵ See Inoguchi, Takashi. The Political Economy of Pacific Dynamism. In *Japan's Growing External Assets: A Medium for Regional Growth?* Proceedings and Papers of ASEAN-China Hong Kong Forum 1988. Hong Kong, Center for Asian Pacific Studies, 1989. p. 67.

⁶ Data from Japan. Ministry of Finance.

⁷ Melly, Paul. Fair Winds in the West. *South*, July 1989. p. 18.

⁸ By way of contrast, only 5.9 percent of the firms investing in North America emphasized the goal of reducing labor costs while gaining market shares was cited by 76.5 percent and acquiring technology by 32.4 percent, indications that avoiding protectionist barriers and enhancing qualitative competitiveness were the primary goals of investment in that region. Japan Development Bank. *Deepened International Linkages Among Pacific Rim Countries: Trade, Foreign Direct Investment and Technology Transfer*. No. 138. Tokyo, February 1990. Table III-20, p. 105. (Report is in Japanese).

Table 1. JAPANESE DIRECT INVESTMENT IN ASIA AND OCEANIA, FY80-88

(US\$ in millions)

	FY80	FY85	FY86	FY87	FY88	Total FY51-88	Comparable U.S.	
							(CY 88)	(Total)
ASIA.....	1,246	1,435	2,327	4,868	5,569	32,161	(2,166)	(18,859)
Asia NIEs.....	378	718	1,531	2,580	3,264	15,018	(1,746)	(10,881)
Hong Kong.....	156	131	502	1,072	1,662	6,167	(638)	(5,028)
South Korea.....	35	134	436	647	483	3,248	(299)	(1,302)
Singapore.....	140	339	302	494	747	3,812	(543)	(3,005)
Taiwan.....	47	114	291	367	372	1,791	(266)	(1,546)
ASEAN (5).....	786	597	554	1,030	1,966	14,784	(237)	(6,800)
Brunei.....		1	1			31	NA	NA
Indonesia.....	529	408	250	545	586	9,807	(— 44)	(3,006)
Malaysia.....	146	79	158	163	387	1,834	(344)	(1,363)
Philippines.....	78	61	21	72	134	1,120	(85)	(1,305)
Thailand.....	33	48	124	250	859	1,992	(— 148)	(1,126)
China (PRC).....	72	100	226	1,226	296	2,036	NA	(310)
South Asia.....	9	19	12	27	28	279	¹ (18)	¹ (457)
Bangladesh.....	5	3			1	20	¹ NA	¹ NA
India.....	2	13	11	21	24	148	(18)	(457)
Pakistan.....		2		5	2	18	¹ NA	¹ NA
Sri Lanka.....	2	1	1	1	1	93	¹ NA	¹ NA
Other Asia ¹	1	1	4	5	15	44	¹ (165)	¹ (411)
OCEANIA.....	448	525	992	1,412	2,669	9,315	(2,009)	(13,884)
Australia.....	431	468	881	1,222	2,413	8,137	(1,915)	(13,058)
Fiji.....					20	43	¹ NA	¹ NA
N. Marianas.....	1	20	13	33	88	198	¹ NA	¹ NA
New Zealand.....	8	23	93	121	118	593	(94)	(826)
Papua New Guinea.....	5	2	1	6	2	208	¹ NA	¹ NA
W. Carolines.....	1	5		20	3	42	¹ NA	¹ NA
Vanuatu.....	2	7	2		14	64	¹ NA	¹ NA
Other Pacific Isles.....			2	10	11	30	¹ NA	¹ NA
Total Asia & Oceania.....	1,694	1,960	3,319	6,280	8,238	41,476	(4,175)	(32,743)

¹ U.S. Category Other Asia includes Other South Asian countries and Pacific Islands.

Source: Ministry of Finance Data supplied by Japan External Trade Organization (JETRO); U.S. Survey of Current Business.

Note: The figures reflect the dollar value of the investments when made and not the present dollar value of such investments.

For investment by small and medium sized Japanese companies—the ones hardest hit by rising costs—Asia is far and away the most important manufacturing investment destination. The proportion of Japanese offshore manufacturing investment in Asia by small and medium sized Japanese firms grew from 57.9 percent of the worldwide total of such investments in 1984 to 72.7 percent in 1987, then dropped back to 65.6 percent in 1988.⁹

The ripple effect of rapidly growing Japanese offshore investment is changing the economic face of the Asia-Pacific region.

- The physical landscape of Asian cities and their environs is coming to be shaped by the proliferation of Japanese business offices, hotels and manufacturing plants.

⁹ Based on data in a Japanese government White Paper on Small and Medium-Sized Enterprises and reproduced in a paper by Yoshihiko Miyauchi at a conference on The Future of Asia/Pacific Economic Relations in Hong Kong, Nov. 5-7, 1989 (sponsored by the U.S. Asia Society and other international sponsors). 1988 data is from a draft 1990 JETRO white paper on world foreign direct investment, obtained from their Tokyo office in March 1990. (p. 15 of the draft).

- Increasing numbers of consumer products bearing brand names such as Sony, Panasonic and Canon are being produced in Japanese owned-factories in Asia, rather than in Japan itself.
- In somewhat revolutionary fashion, Japanese multinationals are creating a regional production base in Southeast Asia involving the manufacture of various components, final assembly and even product design and development across national boundaries in accordance with each country's particular resource endowments, economic infrastructure or labor markets.

"FLYING GEESE" AND THE "NEW DIVISION OF LABOR"

With growing self-confidence, a number of Japanese academics, bureaucrats and political leaders have openly articulated new concepts for the organization of production and trade in Asia. These notions are based on implicit acceptance of the superiority of Japan's production system and the explicit desire to integrate those countries of the Asia-Pacific region that have favorable economic policy and labor conditions into a Japanese-led economic coalition. Over the longer term, Japanese economic managers appear to seek an optimum "division of labor" that maximizes each country's comparative advantage, thus fostering complementary rather than competitive patterns of industrialization.¹⁰

One notion, popularized a decade ago by Dr. Saburo Okita, the foreign minister under the Ohira government in the late 1970s, is the concept of the Asian countries as part of formation of flying geese. Japan, with its larger economy and higher technological level is in the lead position. Ranged behind it in order of their economic strength, levels of technological sophistication and labor costs are the NIEs, the ASEAN countries and, finally, by the lower income countries of South Asia and Indochina.

A related Japanese concept is that there is a natural division of labor in Asia that conforms to each countries' "revealed" comparative advantages—i.e., its relative competitive strength in different product lines as demonstrated by its actual trade performance. In theory, the successive waves of "geese" will gain from the experience of the leaders and tend to close the technological gap, leading to the eventual horizontal integration of the Asian-Pacific region.¹¹ In the meanwhile, however, the Japanese have placed high emphasis on the goal of coordinating production in the Asia-Pacific region in ways that makes the best use of each country's factor costs and minimizes wasteful competition and duplication of production. Japanese companies appear to be emphasizing the regionalization of production rather than promoting end-product specialization in investment host countries.

¹⁰ A most recent discussion of Japan's apparent ambitions to "coordinate" production in Asia was contained in Wysocki, Bernard, Jr. Guiding Hand: In Asia, the Japanese Hope to 'Coordinate' What Nations Produce. *Wall Street Journal*, August 20, 1990. p. A1, A2.

¹¹ Dr. Okita has credited the "flying geese" concept to Professor Kaname Akamatsu, who first formulated it in the 1930s. Okita, Saburo. *Asian-Pacific Prospects and Problems: For the Further Development of the Asian-Pacific Cooperative Framework*. Paper prepared for In Search of a New Order in Asia, an International Symposium sponsored by the Institute of East Asian Studies at the University of California at Berkeley, and Dong A Ilbo, Seoul, February 1-3, 1990. p. 1.

COORDINATION OF AID AND INVESTMENT POLICIES

By all appearances Japan has taken a strategic approach to the organization of production in the region that puts its aid programs at the service both of promoting economic modernization and serving, simultaneously, the needs of Japanese industry. One concept, styled "*minkatsu*" (comprehensive development),¹² envisions the recycling of both surplus Japanese capital and "surplus" manufacturing capacity to low wage developing countries in ways that best promote global economic growth. The essence of the concept is the coordination of ODA, commercial lending and private investment flows.¹³ In a probing report published in July 1989, *The Economist* viewed the *minkatsu* concept as resembling a strategic plan that would, at a minimum, "enhance the current restructuring of the Japanese economy" and, at a maximum, integrate the current NIEs and would-be NIEs like Thailand and Malaysia "into something that would look a lot like a greater Japan Inc."¹⁴

THE INVESTMENT-TRADE NEXUS

Even more than Japanese aid programs, the surge of direct investment has caused a significant restructuring of intra-Asian trade relationships. Thus far, Japanese investment has tended to promote a kind of triangular trade rather than a one-to-one enhancement of Japan's imports from host countries. While an increasing share of the output of Japanese owned plants is returning to Japan as manufactured end items or semi-finished goods, as of 1987 nearly 85 percent of the manufacturing output of Japanese affiliates in Asia was still destined for the local market or third countries, notably the United States, and only 15.8 percent was destined for Japan. (See Table 2)

Emerging trade patterns show both vertical linkages between Japanese parent companies and their offshore subsidiaries or joint-partners, and horizontal linkages among Japanese-controlled offshore manufacturing facilities. The vertical linkages reflect the tight relationships of Japanese multinationals and their offshore subsidiaries, including the extensive use of critical components made in Japan. The growing horizontal integration of production in the Asia-Pacific region follows from the tendency of Japanese companies to produce components in various sites around the region according to each countries' factor costs, infrastructure resources endowments and foreign investment policy environment.

EMERGING NETWORK OF REGIONAL PRODUCTION

In many respects the "flying geese" concept has become a reality. Japan remains the technology leader in the region, and even the advanced NIEs lag well behind in most areas. Boosted by a favorable climate for investment in the NIEs and ASEAN countries, and backed by concessional loans for infrastructure investment in

¹² A literal translation of *minkatsu* is "[utilization of] private vitality." Ozawa, Terutomo. *Recycling Japan's Surpluses for Developing Countries*. Paris, OECD, 1989. p. 104.

¹³ Ozawa, Recycling, 7.

¹⁴ The report particularly noted the role of Saburo Okita in promoting the "flying geese" concept, and the formation of a finance ministry think tank, the Foundation for Advanced Information and Research (FAIR), and its "blue chip" Committee for Asia-Pacific Research.

Table 2. INPUT-OUTPUT ANALYSIS OF JAPANESE OFFSHORE PRODUCTION IN THE ASIA-PACIFIC REGION

(Percentage distribution)

Region	1981		1984		1987	
	Mfg.	Non-Mfg.	Mfg.	Non-Mfg.	Mfg.	Non-Mfg.
Inputs: Source of Japanese Companies' Parts and Components						
Asia						
Local.....	42.2	30.2	44.7	40.3	42.2	18.4
Japan.....	41.5	22.4	38.4	26.5	45.3	28.2
3rd Country.....	16.3	47.5	16.9	33.1	12.6	53.5
Oceania*						
Local.....	19.5	58.3	33.0	29.4	31.4	26.1
Japan.....	60.9	33.5	65.3	58.1	65.5	65.4
3rd Country.....	19.6	8.2	1.7	12.5	3.1	8.5
Outputs: Destination of Japanese Companies' Offshore Production						
Asia						
Local.....	63.9	31.6	66.9	43.3	54.7	33.8
Japan.....	9.8	45.1	10.8	34.0	15.8	24.7
3rd Country.....	26.4	23.3	22.3	22.8	29.5	41.5
Oceania*						
Local.....	80.6	34.6	81.6	52.3	83.5	60.5
Japan.....	13.8	52.0	16.1	38.8	14.7	25.6
3rd Country.....	5.6	13.4	2.2	8.9	1.8	13.7

* Australasia and the Pacific Islands.

Source: Compiled from Japan Development Bank, Deepened International Linkages Among Pan-Pacific Countries: Trades Foreign Direct Investment and Technology Transfer, No. 138, February 1990 (in Japanese). Tables III-22 and III-24, pp. 108 and 110.

would-be new NIEs such as Thailand, Malaysia and Indonesia, Japanese multinationals are creating a regional production base in Asia. This base involves the manufacture of components, final assembly and even product design and development.

THE ASEAN COUNTRIES

The ASEAN countries constitute a vital element in the emerging Japanese dominated structure of production. Japan has emerged as the number one new investor in the ASEAN countries, with cumulative investment as of March 1989 of about \$14.5 billion.¹⁵ By one accounting, Japan's share of total foreign investment in ASEAN countries ranges from nearly 50 percent in Thailand to about 5 percent in Indonesia.¹⁶ Other informal estimates circulating in South-east Asia credit the Japanese with even larger proportional shares, and with unique privileges such as the right to employ proportionately more of their nationals at all levels.

Especially since the rise of the yen in 1985, Japan's focus has been on manufacturing investment. Thailand has been the favored investment target in the past few years, but growing problems of power shortages, transportation bottlenecks and other indicators of insufficient infrastructure have prompted a recent shift of focus to-

¹⁵ Japan, Ministry of Finance customs statistics. See Table 2.

¹⁶ Merrill Lynch data reproduced in *Far Eastern Economic Review* (FEER), November 16, 1989. Estimates generally are "approvals" by relevant countries' Boards of Investment or equivalent body. Indonesia data excludes oil and financial sectors.

wards Malaysia. Recently, the emergence of similar infrastructure problems in Malaysia has stimulated increased Japanese interest in Indonesia.

Companies such as Toyota, Mitsubishi, Sony and Hitachi are organizing parts production and assembly operations on a regional basis. Malaysia recently became Sony's largest manufacturing base in Southeast Asia on the basis of a total investment of more than \$300 million.¹⁷ In late 1989 Tokyo announced plans to invest some \$215 million in two new auto plants in Malaysia and the Philippines, and to control operations in six Southeast Asia plants from a new headquarters in Singapore. Automobile assembly plants bring in their wake component suppliers such as Asahi Glass and Bridgestone, which have subsidiaries in Indonesia and other Southeast Asian countries, leading to what some call a "complementation" scheme with benefits for both the ASEAN countries and Japan.¹⁸

The growth of horizontal trade among Japanese offshore subsidiaries may be doing more to promote intra-regional trade than any steps taken by ASEAN during the whole of its existence.¹⁹ In the words of one Southeast Asian economist, "willing or not, the ASEAN economies definitely have become an integral part of a production structure that is emerging in the Pacific region, with Japan as its core."²⁰

THE NIES

Japan's relationship with the Newly Industrialized Economies (NIEs) tends to follow a different pattern, one marked by both co-operation and competition. While Japan remains the largest supplier of the NIEs foreign investment and technology inputs, Japan until very recently has been a relatively small export market. Rather, the NIEs run a high trade surplus with the United States, their main market, and a substantial but narrowing trade deficit with Japan. Both in the Japanese domestic market and abroad, NIEs companies are often the main competitors of Japanese businesses.

Annual new Japanese investment in the NIEs grew from \$718 million in Japanese FY 85 to \$3,264 million in FY 88, more than a fourfold increase. In most if not all of the NIEs Japan has now displaced the United States as the single largest source of new investment. In terms of rank, Japan's investment is highest in Hong Kong, which has received half of its investment in the NIEs in recent years, followed by Singapore, South Korea and Taiwan.

Paralleling the growth of Japanese investment, Japan's exports to the "four tigers" grew by 120 percent during the period 1985-88, while imports grew by an even larger 152 percent.²¹ In 1989, however, Japan's imports of goods from the NIEs grew only about 8

¹⁷ Balakrishnan, N. The Next NIC. *Far Eastern Economic Review*, September 7, 1989. p. 99.

¹⁸ *International Herald Tribune*, May 30, 1990. p. 1, 21.

¹⁹ Soesastro, M. Hadi. *Southeast Asia's Expectations of Japan with Respect to Investment*. Paper delivered at the Japan-Southeast Asia (JASA) conference, Kuala Lumpur, Malaysia, November 24-27, 1989. p. 15.

²⁰ Soesastro, *Southeast Asia's Expectations of Japan*, p. 2.

²¹ Organisation for Economic Cooperation and Development. *Monthly Statistics of Foreign Trade*.

percent to a total of \$27.1 billion, while its exports grew by about 5 percent to a total of \$52.5 billion. (Table 3)

Table 3. JAPANESE TRADE WITH ASIA-PACIFIC COUNTRIES, 1985-1989

(U.S. Dollars in Millions)

	Imports						Exports					
	1985	1986	1987	1988	1989	% Change 1985-89	1985	1986	1987	1988	1989	% Change 1985-89
NIES.....	9,935	12,608	19,027	25,014	27,137	173.1	22,685	30,286	39,804	49,820	52,756	132.5
Hong Kong.....	774	1,080	1,577	2,111	2,215	186.5	6,565	7,214	8,947	11,708	11,528	75.6
Singapore.....	1,608	1,475	2,081	2,338	2,953	83.7	3,893	4,612	6,064	8,312	9,240	137.4
South Korea.....	4,128	5,334	8,172	11,827	12,997	214.9	7,159	10,558	13,344	15,443	16,565	131.4
Taiwan.....	3,425	4,720	7,198	8,738	8,969	161.9	5,068	7,902	11,449	14,357	15,422	204.3
ASEAN (4).....	16,950	14,009	16,505	18,997	21,792	28.6	7,368	7,548	9,614	13,020	16,646	125.9
Indonesia.....	10,270	7,386	8,500	9,493	11,016	7.3	2,191	2,682	3,016	3,055	3,301	50.7
Malaysia.....	4,372	3,986	4,814	4,709	5,124	17.2	2,184	1,723	2,188	3,061	4,124	88.8
Philippines.....	1,268	1,235	1,375	2,041	2,063	62.6	946	1,098	1,429	1,740	2,381	151.8
Thailand.....	1,040	1,402	1,816	2,754	3,589	244.9	2,047	2,045	2,982	5,164	6,840	234.1
Non-Market.....	6,805	5,980	7,864	10,379	11,780	73.1	12,990	10,312	8,734	9,914	8,888	-31.6
China (PRC).....	6,557	5,726	7,478	9,860	11,140	69.9	12,590	9,936	8,336	9,482	8,522	-32.3
North Korea.....	182	169	240	323	295	61.8	250	185	216	239	197	-21.2
Vietnam.....	66	84	145	196	346	423.6	150	191	181	193	169	12.8
South Asia.....	1,595	1,664	2,042	2,359	2,563	60.7	2,402	3,030	2,921	3,209	3,047	26.8
India.....	1,205	1,309	1,546	1,806	1,974	63.8	1,609	2,119	1,976	2,083	2,018	25.4
Pakistan.....	390	355	497	553	589	51.1	793	911	944	1,126	1,028	29.7
Other Asia.....	2,173	1,578	1,388	1,471	1,458	-32.9	1,073	1,247	1,111	1,069	1,087	1.3
Oceania.....	8,872	8,429	9,718	12,780	14,167	59.7	7,070	7,066	6,919	8,368	9,974	41.1
Australia.....	7,542	7,046	7,974	10,285	11,566	53.3	5,430	5,274	5,196	6,584	7,806	43.8
New Zealand.....	916	964	1,180	1,645	1,658	81.1	1,084	1,114	1,138	1,040	1,348	24.3
Pacific Islands...	414	419	564	850	943	127.8	557	678	586	643	821	47.4
Total Asia-Pacific...	46,830	44,268	56,544	71,000	78,898	70.3	53,588	59,488	69,103	85,400	92,399	72.4
Reference Comparison												
U.S.....	26,356	29,407	31,957	42,295	48,520	84.1	66,617	81,886	84,992	90,264	93,718	40.7
Canada.....	4,847	4,936	6,109	8,300	8,653	78.5	4,559	5,570	5,662	6,426	6,806	49.3
OECD-Europe.....	12,437	18,342	22,860	30,512	35,198	183.0	25,480	37,862	46,116	56,124	56,602	122.1

Note: Numbers may not add due to rounding.

The rapid growth of Japan's exports to the NIEs in the 1985-88 period reflected both investment related transfers of capital, technology and components, and continuing dependency on Japan for components and technology for the NIE's own export production.²² Fast rising Japanese imports during the same period reflected a shift in relative comparative advantage towards the NIEs in intermediate industrial goods such as steel and chemicals, and some consumer electronics products, and the related shift of Japanese owned-production to these countries. The slowdown in the rate of growth of Japan's imports from South Korea and Taiwan during 1989 and early 1990 appears to reflect rising labor costs in those countries, the substantial recent appreciation of their currencies

²² For instance, South Korean electronics manufacturers remain dependent on Japan "for the bulk of their technology imports, including many key components. Even giants like Samsung and Goldstar have long standing technology import relationships with major Japanese manufacturers." Fukagawa, Yukio. Korean Products: A Threat to Japan? *Economic Eye*, December 1987. p. 14.

against the yen, and continuing structural barriers to penetration of the Japanese market by non-Japanese brands.²³

Although some detect a significant redirection of Japanese investment towards the would-be new NIEs in Southeast Asia, especially Thailand and Malaysia, in the past two years, this remains partly a matter of interpretation and emphasis. For instance, while Japanese investment in the ASEAN region doubled each year between FY 86 and FY 88, the overall quantum of investment in the NIEs is still half again as high as ASEAN. Investment in the NIEs during FY 88 was more than half again as high as in ASEAN, but the net increase in investment between FY 87 and FY 88 was higher for ASEAN. (See Table 2, above.)

The same factors that are causing this partial redirection of Japanese investment towards the ASEAN countries are also impelling NIEs companies to go offshore. According to one estimate, the NIEs during 1988 collectively provided some 29.5 percent of total manufacturing investment in four ASEAN countries—Thailand, Malaysia, Indonesia and the Philippines—compared to 30 percent for Japan.²⁴ NIEs producers have enhanced their competitive position against Japanese multinationals in the lower and middle technology ends of the global consumer goods market. Increasingly, companies based in the NIEs are also competing effectively with Japanese multinationals for engineering and construction business in the Asia-Pacific region.

PROBLEMS IN JAPAN'S RELATIONSHIPS WITH THE ASIA-PACIFIC COUNTRIES

Almost inevitably, Japan's growing economic role in the Asia-Pacific region offers the potential for conflicts of national economic self-interest based on differing perceptions of the appropriate economic "division of labor" between the Japanese core economy and the regional "periphery." Three sources of friction seem especially likely to remain sore points in Japan's relations with its neighbors. One is the continued resistance of the Japanese market to manufactures imports. A second is the conflict between the drive of Japanese companies to integrate their offshore manufacturing operations on a regional basis, versus the aspirations of many developing countries to maximize their domestic industrial self-sufficiency. A third is the fact of Japan's commanding technological lead and the extreme reluctance of Japanese firms to transfer to joint ventures or otherwise share the more advanced technology, which seems destined to remain a source of friction between Japan and at least some of its neighbors, especially South Korea and Taiwan.

DISCRIMINATORY TRADE RELATIONSHIPS

While the vertical linkages tend indirectly to promote Japanese exports—especially in the early phases of an investment project—they are also promoting the growth of imports of manufactured goods by Japan. Such imports from the NIEs, the ASEAN countries

²³ See: No Longer a Bargain. *Far Eastern Economic Review*, July 5, 1990, p. 5-6.

²⁴ Merrill Lynch *Asian Economic Commentary* quoted by the *Straits Times* (Singapore), October 12, 1989, p. 40.

and China grew threefold from \$8.8 billion in 1985 to \$26.3 billion in 1988.²⁵ Nearly 73 percent of Japan's imports from the NIEs were manufactured goods as of 1988. From a much lower base, the share of manufactured goods in Japan's imports from the ASEAN countries more than doubled from 1985 to 1988. (See table 4.)

Table 4. PROPORTION OF MANUFACTURED GOODS IN JAPAN'S IMPORTS

(Percent share)

	Global	LDCs	Asian NIEs	ASEAN
1980.....	22.8	9.9	50.8	6.1
1981.....	24.8	10.6	56.8	6.3
1982.....	24.9	11.2	56.5	6.1
1983.....	27.2	12.1	55.5	7.5
1984.....	29.8	14.4	57.1	8.4
1985.....	31.0	14.9	57.8	9.2
1986.....	41.8	23.0	62.3	12.6
1987.....	44.1	28.8	66.2	15.8
1988.....	48.9	36.4	72.9	20.1

Source: Japan. Ministry of Finance. *Customs Statistics*.

A large part of this growth appears to be coming primarily from Japanese owned or controlled production, and its sustainability is in doubt. According to one account, most the growth of manufactures exports to Japan, especially consumer electronics goods from the NIEs, "have mainly consisted of goods made by, or produced under contract for, big Japanese companies."²⁶ Indigenous producers, themselves, are still finding its very hard to crack the Japanese market. Moreover, as a potentially troublesome sign for the future, the rate of increase of manufactured imports from the NIEs has tended downward in recent years, from 61 percent growth in 1987 to 47 percent growth in 1988 and only 12 percent growth in 1989.²⁷

AMBIGUOUS ATTITUDES TOWARDS THE REGIONALIZATION OF PRODUCTION UNDER JAPANESE DIRECTING AUSPICES

Despite their rhetorical acceptance of the concept of interdependence, few of the countries in the region are content simply to play the role of cogs in a larger wheel, save for those such as Singapore or Hong Kong that can make a virtue of necessity by becoming regional financial, technological or distributional nerve centers for Japanese firms. Few countries aspire only to serve as low wage locations for Japanese offshore manufacturing or wish to remain forever dependent on Japanese technology. Most still seek to achieve levels of self-sufficiency that are well beyond what otherwise would be justified by their natural resource endowments and domestic market potential. Their preference, therefore, is for investment and related technology transfer that raises the overall level of sophisti-

²⁵ *Nihon no Seihin Yunyu Doko 1988* (Japan's Manufactured Imports in 1988). Tokyo, JETRO, 1989. Cited in: Urata, Shojiro. *Recent Economic Developments in the Pacific Region and Changing Role of Japan in the Regional Interdependence*. Foundation for Advanced Information and Research (FAIR) Conference, Fukuoka, Japan, 28-29 August 1989. Table4.

²⁶ *Far Eastern Economic Review*, May 3, 1990, p. 48.

²⁷ Japan. Ministry of Finance customs statistics. Cited in: Japan Economic Institute. *The Debate Over U.S. Trade Policy Toward Japan*. No. 19A, May 11, 1990. p. 5.

cation of their economies. Often this is seen as synonymous with the production of recognizable end-items, not components for assembly elsewhere, and by eventual parity with Japan in selected medium and higher level technologies.

DESIRE FOR A MORE EQUAL TECHNOLOGICAL DIVISION OF LABOR

The NIEs want most of all to raise their own technological capabilities to compete on more even terms with Japanese companies in world markets. Especially in the face of rising costs and currency appreciation, the NIEs must increasingly challenge Japan's higher tech industries in order to maintain their export growth. Likewise, the ASEAN countries, China and other developing nations are eager to become new NIEs themselves.

In recent years, Japan's economic relationship with the NIEs has involved increasing elements of technological rivalry. South Korea and Taiwan in particular are struggling hard to eliminate their technological dependence on Japan by creating an indigenous capacity to build vital components such as computer memory chips. This has proved an uphill battle, due to continuing enormous investment by Japanese companies in research and product development. Because of their small size and high dependence on foreign investment, Singapore and Hong Kong have generally played more complementary roles vis-a-vis the Japanese economy, especially as production bases for exports to world countries and as regional headquarters sites.

The aspirations of Asian countries to raise their own levels of technology through significant technology transfer often are sharply at variance with the goals of Japanese companies and their related officials at MITI. First, the Japanese seek only to move overseas those industries or subindustries that are no longer profitable in Japan. If a way can be found to compensate for rising domestic costs through higher capital investment or innovative product development, the industry in all likelihood will remain at home. Second, when the Japanese do invest in offshore production, they tend to maintain strict control of the technology and to maintain their preexisting subcontractor and supplier relationships. In fact, most of the growth of consumer electronics exports to Japan from the NIEs has come from Japanese firms producing their own brands offshore, not indigenous producers. While these practices may make good economic sense, and may be justified by the lack of reliable local suppliers or a cavalier attitude towards proprietary technology or intellectual property rights in host countries, they are nonetheless significant sources of friction.

In some cases, such as South Korea's rapidly growing share of the semiconductor market or the increasing dominance of the NIEs at the low end of the consumer electronics market, the NIEs can take satisfaction in closing the gap with their Japanese competitors. In the higher technology areas, however, Japanese companies are, if anything, increasing their dominance through enormous investments in new product development and production technology. Moreover, the recent decline in the yen against the NIEs currencies has seriously eroded the price advantages that the latter previously enjoyed vis-a-vis competing Japanese products, leaving them

not only behind in the technological race but also less attractive as destinations for Japanese investment.²⁸

JAPAN DOMINATED ASIA-PACIFIC REGION?

Many see rising Japanese aid and investment, and thickening trade ties between Japan and its neighbors, as producing a Japan centered Asia-Pacific economy, more pronounced than at present. Notwithstanding its pejorative overtones, such a scenario has the potential to be either a positive sum or zero-sum situation. At one end of the scale, it can be viewed in positive terms a continuation of an ongoing economic power shift in the Asia-Pacific region in the direction of Japan, in which the effects for most countries *besides* the United States would be not unlike scenarios that project a continuing U.S.-led Asia-Pacific region or only a subtle shift of power in the direction of Japan. At the other end of the scale, it could resemble a modern equivalent of the "Co-prosperity Sphere," in which Japan's dominance had negative consequences for its neighbors due to a fundamentally inequitable economic and political order.

Under both extremes of this scenario, Asia-Pacific countries would become increasingly dependent on Japan for capital flows (either aid or investment) and increasingly tied to Japan by trade links, while U.S. domestic manufacturers and multinationals would face increased competition from Japanese multinationals both in Asia and in the U.S. market. While the scenario could provide for continued dynamic economic growth in the region, the differentiation of functions between Japan and its neighbors would remain biased in favor of Japan, including a heavy dependence on Japanese controlled technology. Over the longer term, Japanese political influence would expand at U.S. expense, while the U.S.-Japan security relationship would likely suffer from the effects of increasing trade friction and U.S. resentment at Japan's growing power.

The viability of this scenario as a positive sum situation would depend on the ability of intra-Asian trade to become relatively self-sustaining, especially the ability of the Japanese market substantially to supplant the U.S. market as an engine of regional economic growth. The prospects of the NIEs for achieving developed country status and the hopes of the less developed countries (LDCs) for achieving NIE status, may hang in the balance. The most recent annual report of the Asian Development Bank (ADB), in which Japan is the largest donor and exercises predominant influence over loan policy, stressed intra-Asian trade, in which Japan plays a central role, as the key to sustaining Asia-Pacific growth.²⁹ As noted above, other estimates of Japan's ability to supplant the U.S. market as the primary engine of Asia-Pacific growth are not so optimistic.

²⁸ See NICs Lose Knack, and a related article, No Longer a Bargain. *Far Eastern Economic Review*, July 5, 1990. p. 53-54.

²⁹ Intra-Asian Trade Building New Power Block in World Economy. *Straits Times* (Singapore), May 1, 1990. p. 32 (Reuter news service report).

EMERGENCE OF A JAPAN-CENTERED REGIONAL TRADE BLOC?

Some already forecast emergence of a Japan-centered regional trading bloc that could effectively freeze U.S. companies out of their "natural" level of participation in Asian growth. The available data are mixed, and the kind of data being offered in support of the regional trading bloc thesis could well prove not to have the expected implication claimed.

The realization of a "Yen Bloc" could result from either of two different developments. One possible source could be the development of trade blocs *outside* Asia leading to high Asian dependence on the Japanese market. Many in Asia have seen the U.S.-Canada Free Trade Agreement and the impending transition of the EC to a unified market as leading, ultimately, to rising barriers to Asian manufactures in North American and European markets. A *de facto* yen bloc could also result from the sheer weight of Japan's growing economic role in the region, the relative decline of the U.S. role compared to that of Japan, and the lack of any other single major economic player.

While noting the still strong economic ties of Asian countries to the United States, Edward Lincoln of the Brookings Institution has argued that just as the United States is moving in the direction of reducing its trade deficits, cutting its aid programs, and reducing its overseas investment, Japan is moving in the direction of reducing its trade surpluses, boosting its aid and rapidly increasing its offshore investment. "As this situation develops," Lincoln argues, "the potential rises for Japan to offer a preferential Asian trading and investment zone which does not include the United States."³⁰

Another factor pointing to a Japan-centered Asia is the strong lead that Japan still maintains there in product oriented research and development. Although South Korea and Taiwan in particular are rapidly increasing their R&D efforts, the total effort by the most advanced Asia-Pacific countries is less than 10 percent that of Japan's.³¹

The main argument against the Yen Bloc thesis is the simple fact that to a large extent Japan's growing investment in the Asia-Pacific region is still aimed at the U.S. market, and that any kind of a closed system would still appear to pale in comparison to the present trans-Pacific system. Even if intra-Asian trade and investment continues to accelerate, the United States likely will still loom as the most attractive single market both to Japan and to its Asia-Pacific neighbors.

Given the still strong third market focus of Japanese and NIE investment in the Asia-Pacific region, a real "Yen Bloc" looks far more likely to develop as a result of the emergence of trade blocks elsewhere in the world. Among other things, a formal as opposed to

³⁰ Prepared Statement of Edward J. Lincoln, Senior Fellow, the Brookings Institution, in: U.S. House. Committee on Ways and Means. *East Asia: Challenges for U.S. Economic and Security Interests in the 1990s*. Hearing, 100th Cong., 2d Sess., September 26, 1988. Washington, U.S. Govt. Print. Off., 1988. p. 88-89.

³¹ Based on a table in a Japanese Development Bank Report produced under the supervision of Masaharu Hanazaki. *Deepened International Linkages Among Pacific Rim Countries: Trade, Foreign Direct Investment and Technology Transfer* (in Japanese). The table compares the latest available R&D expenditures of Japan, the United States, Canada and eight other Asian countries. Data years vary from 1984 to 1987 (U.S. and Japan). p. 124.

an informal "Yen Bloc" would require Japan to allow the yen to supplant the dollar as the medium of trade in the region. While this may already be taking place in a partial way, there is no evidence that Japan's economic managers have any desire to see the yen replace the dollar in the region. For Japan, a "Yen Bloc" still looks as a distinctly less attractive option than an expanding world economy and a stable international environment within which the country can best grow and prosper.

For other reasons as well Japan would seem to face an uphill struggle to convert its role as the "core economy" into full fledged regional economic and political dominance, let alone military sway. If Japan pushes too hard, the potential for an Asian backlash remains strong. Even now, the other militarily and industrially powerful Asian countries such as China and South Korea are in no mood to accept a political-economic replay of the 1930s. Moreover, while the leaders of some Asia-Pacific countries may be inclined to bend in the Japanese wind, volatile populations may be less pragmatically inclined. In the face of an excessively intrusive Japanese economic presence, the forces of ethnic and political nationalism could well be strong enough to overwhelm neat calculations by their leaders of national economic self-interest.

Despite continued resistance to imports by vested interests, powerful market forces are undercutting Japan's comparative advantages in areas of former strength while forces for economic liberalization appear at this time gradually to be gaining strength. Under the best of circumstances, however, it remains questionable whether Japan will open its market enough, and whether the potential market is absolutely large enough, to be a credible alternative to the U.S. market as the main engine of Asia-Pacific growth. The possibility of self-sustaining growth in the Asia-Pacific region, especially with greater Japanese market openness, is plausible but by no means assured.

Asian countries can be expected to resist Japanese concepts of the appropriate economic "division of labor," and Japan has as yet shown itself unwilling or unable to give any overall sense of direction or coordination to its aid programs apart from micro-level activity aimed at specific economic sectors. A recurring criticism of Japan's aid is that it remains project, rather than program, oriented. On the political front, Tokyo has become more active diplomatically, but it has yet to show the willingness or self-confidence to put Japanese prestige on the line in tackling difficult problems.

In terms of the implications for U.S. economic interests, the main threat to U.S. interests would appear more likely to come indirectly from a general breakdown of the present economic and security framework in the Asia-Pacific region, than directly from the displacement of U.S. influence or the decline of U.S. prestige. Up to a point, the United States can live with rising Japanese power and influence so long as the overall situation is an expanding sum—one with opportunities for all participants. A collapse of the current Asia-Pacific economic expansion or the rise of political or military instability, on the other hand, would adversely affect all of the countries of the region. While Japan's economic power and influence are indeed growing, and partly at the expense of the United States, the latter retains important options and a large measure of

control over its own future. Whether it exercises these options wisely, or acts in ways counterproductive to its long term interests or those of the Asia-Pacific region, is a matter of political and policy management in which Congress will exercise major if not decisive influence.

